

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

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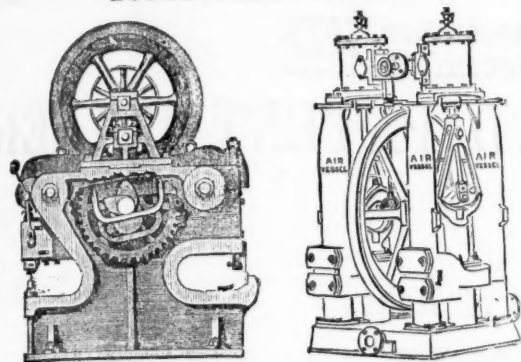
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No. 2081.—VOL. XLV.

LONDON, SATURDAY, JULY 10, 1875.

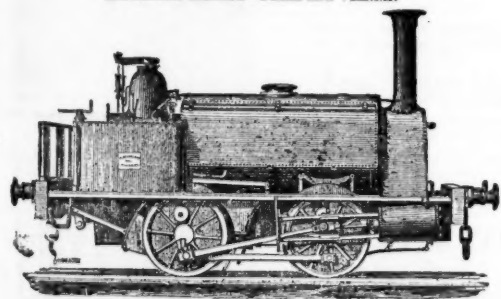
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	Weights	Bores	
No. 1.....	65 lbs.....	1½ holes.....	£60
No. 2.....	80 „.....	2 „.....	68
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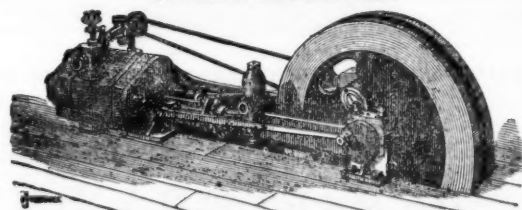
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Samples and prices on application at the Works; or of

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The SIMPLEST, CHEAPEST, and BEST Machine in the World for SINKING, MINING, and QUARRYING,



Is extensively used at the principal Mines, Collieries, and Quarries of Great Britain, and the Continent of Europe.

"To this invention, which appears to possess several advantages over the machines previously exhibited at Falmouth, the Judges are unanimous in awarding a first-class silver medal" (the highest award).—*Report of the Judges at the Royal Cornwall Polytechnic Society's Exhibition, 1873.*

"The boring machine works splendidly."—W. TORRANCE: *Mid-Calder.*

"For simplicity, compactness, and performance of work, your drill excels all others."—JOHN MAIN: *Crossfield Ironworks.*

"Under the most difficult circumstances, they give every satisfaction."—G. GREY: *Montreal Iron Mines, Cumberland.*

"The simplest and best boring machine."—Capt. WASLEY's letter to the *Mining Journal*, Oct. 18, 1873.

"It gives every satisfaction."—W. E. WALKER: *Lord Leconfield's Iron Mines.*

"The rock-drill I bought of you seven months ago has given me entire satisfaction, and I am convinced that the 'Kainotomon' is the best rock-drill in the market."—P. MCGINNIS: *Strabane.*

"I am quite satisfied with the working of it. For sinking pits it is a first-rate invention; I can do as much boring with it myself as six men can do by hand." S. JENKINS: *Abertillery.*



The advantages over other Rock-boring Machines claimed for the "Kainotomon" are—

- 1.—It is much shorter.
- 2.—It is much lighter, and more readily removed from place to place.
- 3.—It requires the turning of ONLY ONE, instead of a number, of set screws, to fix it in position at any angle.
- 4.—It may be fed 3 inches out of stroke, without stopping the working of the drill, an invaluable advantage.
- 5.—It is not liable to derangement.
- 6.—It has not one-third the number of parts in its construction.
- 7.—All stuffing-boxes and parts requiring adjustment are dispensed with.
- 8.—It is so simple in its construction that any ordinary labourer or miner can drive it, simply having to turn on the motive power and feed the drill.
- 9.—The rotation is compulsory, and regular.
- 10.—40 lbs. pressure only is required to work it.
- 11.—A saving of over 50 per cent. in iron and flexible piping.

"THE ECONOMIC" COAL-CUTTERS, AIR COMPRESSORS, BOILERS, &c.

THOS. A. WARRINGTON, 30, KING STREET, CHEAPSIDE, LONDON, E.C.

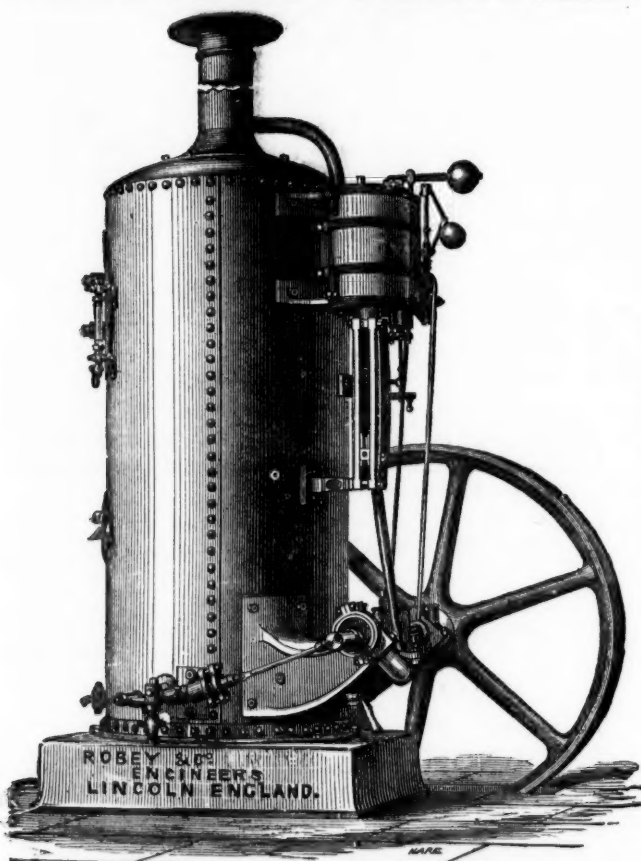
Patent No. 4136

Dated 16th December, 1873.

Patent No. 4150

Dated 17th December, 1873.

IMPROVED VERTICAL STEAM ENGINES AND PATENT BOILER COMBINED.



The Illustrations show one of Robey and Co.'s improved vertical Engines.

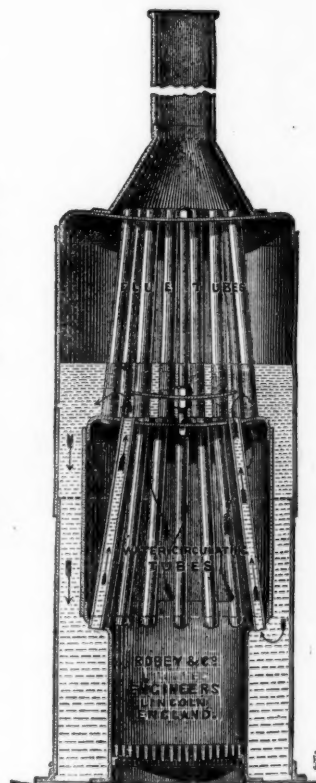
All these engines are supplied with Robey and Co.'s new patent vertical boiler, as per section illustrated, which has among others the following advantages over all vertical boilers yet produced:

PERFECT CIRCULATION OF THE WATER.

SEPARATION OF THE SEDIMENT.

GREAT DURABILITY.

GREAT ECONOMY IN FUEL.



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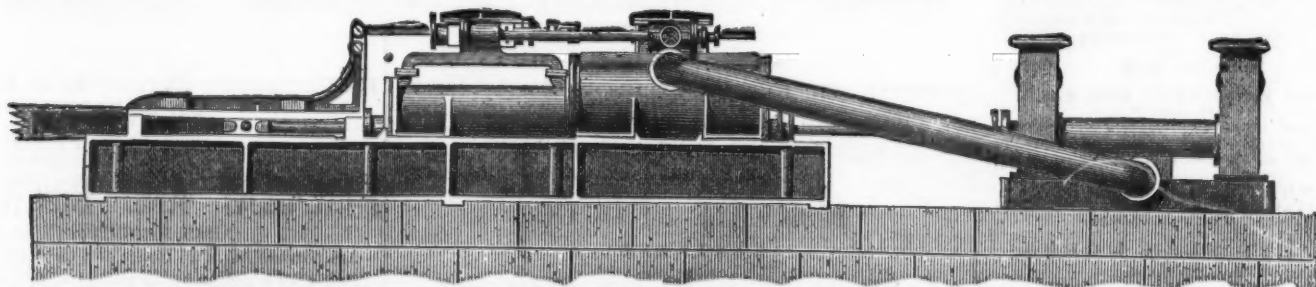
PERSEVERANCE IRONWORKS, LINCOLN, ENGLAND.

CAUTION.—Notice is hereby given, that any person infringing the above Patents will be forthwith proceeded against.

HATHORN, DAVIS, CAMPBELL, AND DAVEY,

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Also, Single-cylinder Condensing Differential PUMPING ENGINES; Steam Pumps, of various kinds; Hydraulic Pumps, for dip workings; Winding Engines; Compound Rotative Engines; the Separate Condenser; High and Low Pressure Steam Boilers, &c.

SUN FOUNDRY, LEEDS.

FURTHER PARTICULARS ON APPLICATION.

Original Correspondence.

PREVENTION OF EXPLOSIONS IN COLLIERIES.

SIR.—In years gone by the columns of the Journal were not unacquainted with communications from me, and with a feeble attempt to support the really practicable and sensible article in last week's Journal on the above subject I beg to trouble again.

As you may remember, and your Journal bear record, it is more than nine years since I read a paper in Manchester, in which I tried to show that blasting coal is not only an unscientific method of getting it, but most destructive to the quality and value of the coal when produced.

Though this side of the question verges on to a public one, so long as it affects qualities and values only those being possessors of the coal mines, by lease or otherwise, are rightly left to their own discretion—or more generally indiscretion—of working their coal as they please; but when this indiscreet working affects, and largely, a more numerous body, whose gain and loss in money value are not affected by the discreet or indiscreet mode of working coal, it becomes a question whether the owner's right to work as he thinks fit should not be subjected, and more especially if it can be shown that this subjection can be administered in such a manner as not to diminish the value or lessen the profits of the subject. This is just the position of coal getting by blasting. That there is an affected party coming from the blasting of coal you plainly show, as do the Blue Books containing the reports of H. M. Inspectors of Mines, and since your article was penned the list affected has been augmented in this district, and so will it continue so long as the use of gunpowder is permitted in coal getting. Why, in the name of common sense, does not the Home Office take the matter up. The colliery proprietors would not be sufferers, but the reverse; they would then have to get their coal less murderously, more systematically, and eventually scientifically, with results in their favour astonishing to themselves.

In collieries where explosive gases are not found, and the men left free to use powder as much in quantity as they please and how they please, it is a well-known fact that one man may and will use 12 or 15 lbs. in a week, while his next neighbour will get as much coal (twice as valuable) and not use 1 lb. of powder—in fact, no powder at all, though the circumstances are in every respect similar. The latter is a skilled collier, and gets his coal as well as the nature of things admit. The former is not skilled, and attempts to do with powder what his neighbour does with common sense and a proper application of his labour.

I would prohibit powder in all coal getting, whether fiery or not. Though the hammer and wedge would be needed at times, not 1 per cent. of the powder force would be required in the wedge. Men would learn how to prepare the coal before attempting to get it down. The men who use a quantity of powder, or are frequently hammering at the wedge, are not good colliers, and so long as they have the facilities afforded them of using powder never will be good colliers. Coal wants preparing, and if well and properly "holed," with a good line at the back—that is a straight line—there needs no powder; its own weight will bring it down. Many of your readers whose notions of holing are limited by about 2 ft. or 2 ft. 4 in. deep, will say the coal will not come down. Of course it will not, but holed deep enough it will. A good collier's depth is limited only by the indication that his coal is ready to drop when he takes out his sprags. This mode of getting coal involves the necessity of working on the long-wall. This is not a drawback but an advantage, as every person, who from experience is competent to give an opinion, acknowledges the superiority of the long-wall over the other systems, if systems they may be called. It may be objected that to re-arrange and put collieries on the long-wall system that are otherwise set out will be too costly. I admit that it will be more or less costly, according to the long-wall experience or want of it in the individual having control of the alteration.

The late Mr. Peter Higson, who was her Majesty's Inspector for West Lancashire district, year by year in his reports pointed out the evils of blasting coal, as forcibly as it is possible to do. In his report for 1870 he says, "In the working out of a mine in pillars or long-wall gunpowder generally need not be applied. By proper arrangements the superincumbent weight of the strata may be made to supply its use." This, together with the weight of the coal itself, which is holed, I have for years contended, and do contend, are quite sufficient, and when well directed, capable of bringing coal down in any seam I have yet seen. For the use of powder in getting coal there is not an argument of sound reason to be adduced. For its entire prohibition the reasons are palpable enough, and the wail of the widows and orphans, sufficiently loud to attract the notice of all and any who do not wilfully blind themselves to the facts that are taking place weekly. I have got my quantum of coal as a collier, and been underwriter and manager of collieries in five different counties in England, and as a consulting engineer, professionally visited every coal field in England and Wales, Scotland and Belgium, and say what is herein expressed as the result of my experience.—South Parade, Leeds, July 7. J. WARBURTON.

WATER AND COMPRESSED POWER FOR MINING BY MACHINERY.

SIR.—The favourable notice in last week's *Mining Journal* of the recently issued report of the Miners' Association of Cornwall and Devon affords me an opportunity of referring to the paper of Mr. John Darlington therein contained, several points in which seem to require a little clearing up. His account of the utilisation of water-power at the Wildberg Mines, in Germany, is very interesting, but there are some particulars upon which a little more information would be very useful. Mr. Darlington states that the power is obtained by first diverting various small streams to a common centre, then running the water into a pressure column, next applying the water as a means of power through the medium of horizontal pressure engines, then compounding the initial pressure by means of forcing pumps into pressure of great magnitude; then, again, transferring the intensified pressure from one point to another by means of small wrought-iron pipes; and, lastly, using the power through the medium of single-acting pumping and winding engines. Now that such an arrangement accomplishes the object in view I do not doubt, but that it does so with the maximum of economy I believe to be practically impossible. The power is applied more than a mile from its source, which I admit presents a great difficulty, but my contention is that Mr. Darlington has not demonstrated that his very expensive method of utilisation has any advantage in point of power developed at the pumping-engines as compared with far cheaper and more simple contrivances.

There are many details essential to the discussion of the subject which Mr. Darlington does not furnish, yet he gives enough to show that the system which he describes is not economic. He states that the initial pressure of the water is 25 lbs. per inch, which is compounded into a working pressure of 500 lbs. per inch, and that the latter pressure is transmitted the distances named with an apparent loss of about 5 per cent. This is so far satisfactory, but to effect this he has two expensive engines and a large series of complicated machinery, and as a result he has to convey water at 500 lbs. pressure to the distance of a mile. The speed of the engines varies from a stroke in 3 or 4 minutes to 7 strokes per minute, so that it may be concluded that the quantity of power transmitted is at no times very great, though upon this point Mr. Darlington gives no information. Now, the transmission of the water at a pressure of 500 lbs. to the inch necessitates the use of a very costly transfer main—wrought-iron pipes pitched within and without, and held together with gaiters, perches, packed flanges. The pumping and winding engines are also of special and very complicated construction, whilst the inconvenient and uncontrollable character of the winding-engine may be judged of from the remark that "the kibble is drawn by means of the engine, and dropped with the aid of a brake."

Now, in the first place the assertion that water at 500 lbs. per inch can be taken more than a mile through 1½-in. tubes with a loss of but 5 per cent. must either be based upon an error, or proves that the experience of all men of science with regard to the friction to be

overcome in passing fluids through pipes is worthless, and that Mr. Darlington has discovered a new law. I should think that if the loss in transmission were but 10 per cent., giving us 450 lbs. at the pumping-engines when there is 500 lbs. at the source a mile distant, it would be excellent in practice. But with some of the rotary engines recently invented—McFarland's, for example—there is no necessity for transmitting at this enormous pressure; they would work quite well with a constant pressure of even 20 lbs. to the inch, and there would be the enormous advantage that cheap tubes of larger diameter could be used, so that the loss of power by friction during transmission would be materially reduced. A loss of 5 per cent., as suggested by Mr. Darlington, would leave 23½ lbs., and a loss of 10 per cent. would still leave an atmosphere and a half. Of course, no one would by preference work a rotary engine at so low a pressure as this, but to convey the water direct to the point at which the power is to be applied, and use it at once in the motor engine, would obviously be an advantage. That the highest percentage of effect of the Wildberg machines is gained when they are worked to the full extent of their load is beyond question; indeed, it is the fact that engines of this class are always involving the same expense whether they are doing much work or little that has prevented their more general adoption. It is the same objection that caused the lime-light to be a failure; 500 candles' light had to be paid for whether 500 or 50 were required, so that in very many cases the supposed economy was a practical loss. The system which Mr. Darlington describes is a clumsy and roundabout way of doing that which should really give very little trouble, the simple problem being to employ water at 25 lbs. pressure to raise a mine kibble a mile away.

"He who proves too much proves nothing" is a recognised maxim in logic, and Mr. Darlington does something like this in describing the work performed by compressed air. He shows that with one atmosphere effective pressure the expenditure of 17.04 lbs. of work will return work equal to 17.05 lbs., which would render perpetual motion possible, since the smallest creation of power would suffice for that long-sought object. I believe the Wildberg system to be a mistake, and it is the too close application of the pressure system that has prevented the Darlington borer working so well as could be wished. The true test of the rock-drill is the percentage of power which it utilises, which can only be ascertained by running it (no work being done) down to the lowest pressure at which it will reciprocate. Supposing the pressure of steam or compressed air to be 60 lbs. on the square inch, it follows that a rock-drill that will reciprocate with half an atmosphere has 52½ lbs. left for effective work, whilst one that will not reciprocate at less than an atmosphere has but 45 lbs. left for effective work, and the former machine (assuming both machines to be equally well made) would be more than 16 per cent. better than the latter. To the non-practical man the valveless arrangement appears to ensure the maximum of simplicity, but really it is a most objectionable system, because it is difficult to get the parts in correct position, and still more difficult to keep them so, whilst much of the effective pressure of the air is lost. The area of the unoccupied part of the fore end of the cylinder must be sufficient to enable the air to produce the back stroke (suppose it to be one-fourth that of the back end). Now, until the air has produced a considerable part of the back stroke the channel which connects the back and fore ends of the cylinder is not opened. The air then passes through the fore end to reach the back end of the cylinder, and the whole forward stroke is made against the initial air pressure, so that if the fore and back ends be as 1 to 4 there must be a loss of 25 per cent. of the available power. The question then becomes whether the dispensing with valves compensate for this loss? a question which with the others I have put I think I may fairly leave Mr. Darlington to answer.

July 5.

MINE ADVENTURER.

CAPE COPPER MINING COMPANY.

SIR.—It appears by the very satisfactory report and statement of accounts just issued by the directors of this company that the profits of the last two years were as follows:—

1873	£72,439
1874	£216,438
Whereas the chairman at the last annual meeting estimated the profit for the year 1873	£49,000
1874	£68,000

Leaving actual profit in the two years, more than that estimated, of £24,438. And that notwithstanding the June, 1875, dividend of 20,000, has been charged in the 1874 account, and that the large sum of 19,602½ has been written off the two years' profits, the dividends have been all paid out of realised profits, leaving a surplus of 3397½ 3s. 8d. When we consider the returns are now at the rate of 1000 tons of ore per month, or at the rate of 12,000 tons per annum, as compared with 10,206 tons of 1874, the dividends heretofore paid must be increased.—London, July 1. AN INVESTOR.

MINING ON THE PACIFIC COAST—No. XI.

SIR.—There are few persons besides those who have at some period of their lives resided in a metallic mining centre that know of the innumerable difficulties that not unfrequently intervene to prevent the successful operations of the miner. The business man in other avocations is not without guides and data to lead him aright, and enable him to guard against the contingencies of trade, an overstocked market, dull times, and other troubles inseparable from commercial transactions; while the miner is, in a great measure, compelled to grope in the dark, having neither landmarks nor data to enlighten him regarding the probabilities of the future. True, he can avail himself of the advantages of science and experience, but without he is competent to apply the principles of the one, and to profit by the teachings of the other, he will not be likely to derive much assistance from either. Under such circumstances what can he do better than to trust to chance, his own luck, or whatever else it may be termed, in directing him in his choice of the location and mode of operation? In these respects he is fully as likely to stumble upon success as his more experienced brother; for the value and character of quartz lodes are ascertained only by development, hard labour, and expenditure of both time and money. The husbandman can always estimate, except in rare cases, how much his farming operations are likely to yield him under certain conditions, such as management, cultivation, and the like, providing that there are no serious fluctuations transpire in the market value of cereals and other products; but this the miner is incapable of doing, owing to the nature and precariousness of his undertakings. The miner may pride himself on the extent of his knowledge of the geological formation of a district, and may, likewise, pride himself in being able to account for the differences of formation in different districts. He may also be able to explain, to his own and others' satisfaction, why limestone should predominate in one district, quartz—or its counterpart, quartzite—in another, granite here, and mayhap dolomite, or some other rock, yonder. All of these things he may be able to account for, and yet not prove a success as a miner, from the fact of his inability to see into the ground an inch below its surface. And herein lies the difference between himself, the farmer, or the merchant. The two latter have nearly at all times the evidences of value before them, upon which to rear hypothetical figures, and also upon which to demonstrate and approximate future returns. He, on the contrary, is dependent on chance, and cannot predicate the future, or reckon his gains, only in so far as his lode or mine, by reason of its mineral attributes, enables him to judge of its worth and permanence; and the former, as is well known, is largely the result of the latter condition. Without this merit existed and was apparent in the Comstock lode, it would not command the attention it does from mining speculators. It is this merit, too, that invites the confidence of London and American operators in the Eureka Consolidated and the Richmond Consolidated Mines of Ruby Hill. Permanence gives value to mining ventures, for a mine is valuable only while it is capable of paying reasonable interest upon the money invested in it.

The Tybo Consolidated Company's property of this section, divested of the constituents of permanence that exist, and that are everywhere visible along the course of its lode so far as developed, would not be very likely to attract a great deal of notice from such as make mines and mining a speciality. Were these evidences of

value wanting it would soon cease to elicit many encomiums from mining men here. And did it not possess those merits I should be very sparing in my remarks regarding it, but since it does, and to a greater extent than is to be observed in any of the mines of the adjacent districts, I have no hesitation in recommending it, and extolling it in the manner that I have heretofore done. My object in writing is twofold; I desire, if possible, to become instrumental in removing the prejudices that exist in the minds of English operators against the mines and mining securities of this country. To do this it is not necessary to indulge in exaggeration, for hyperbole would add, not only to my own discomfiture, but in the end injure instead of subserving the interests at issue. I desire also, in the second place, to exhibit from time to time, as your correspondent, such data as I may be able to collect in my peregrinations through this State, in support of the greatness of its mines, the value of its mineral deposits, their diffusion and richness, and draw the line of demarcation between the really meritorious and the wild-cat class of mines. The former are plentiful enough in Nevada, and if looked for by honest and capable agents, they can be found in abundance, at reasonable prices. But it is possible that a fanciful price, extending away into the hundreds of thousands and millions, may yet, as in early years, be looked upon by English investors as the best guarantee of the excellence of a mine. This was the case with those abortions the Emma, the Flagstaff, the Pacific, the Baysie, or Pinto, ventures, and others that I cannot now recollect. These all belonged to the genus feline, a fact known to the vendors, hence the enormous rates at which they were sold; while there remained, and yet remain, languishing in silence and unproductiveness many valuable mines, that only then needed, and now need, capital to render them miracles in the line of production and remuneration, when compared with the above. It is to the disastrous consequences that have resulted from these mad speculations must be attributed the present indifference; for, in view of the facts that have been brought to light in connection with their purchase, they cannot with propriety be otherwise denominated than the maddest and wildest mining ventures ever entered into by sane men. The two first, apart from their unworthiness and the rascalities resorted to by those who floated them, were too largely stocked, as well as too heavily pressed at the outset of their careers, to prove other than mere gilded bubbles, which could not avoid bursting the moment the pressure of circumstances began to be felt. This pressure soon came to be unbearable, for the strain and heaviness of such disbursements as 18 and 24 per cent. per annum in dividends could not long be borne by either the Emma or Flagstaff, and this the investors in these mines ought to have understood. The inevitable consequences followed, and ever will follow, such acts. Yet the blame is attached to the country and its inhabitants, instead of to the persons most directly implicated in bringing about such a lamentable state of things.

Much of the unfortunate results that have accrued could have been entirely avoided if the English people, or capitalists, had employed proper precautions, and selected men of the utmost probity and experience to execute their mining commissions for them. Men as irreproachable as Caesar's wife are the sort of persons that should be employed to examine and report upon mining properties. There are, however, some other things besides mere honesty that deserves to be considered in connection with this matter. It is not enough that a man should be above falling into the temptations held out to him in the way of becoming a partner in the plunder received by vendors of worthless mines, for such only will ever offer such dishonourable proposals to any party to aid and abet them in their sale. He should be possessed of the necessary experience and skill as a miner or mineralogist to enable him to distinguish the difference between a segregated deposit and a lode or fissure vein. The latter in all cases have longitudinal and vertical extent, and possess besides certain well-known distinctive features or marks, known to and readily recognised by the adept in practical mining, as well as by students in the departments of geology and mineralogy. It is not enough, too, that he be competent to make these distinctions; he should also be able to tell the worthless gangue found in places from the purer metallic ore with which it is sometimes associated, either in the matrix or along the sides or walls, forming a casing to the more valuable mineral. Men who are sent out from England for the purpose of examining and reporting on mining properties are supposed to be able to tell a piece of common limestone from mineral quartz, or argenteriferous galena from milling ore. But the reverse is, and has been, unfortunately, the case. I am at present able to recall two instances that will serve to illustrate the ignorance and untrustworthy character of the class of men to whom has been heretofore confided by their English principals the important duties of examining and reporting on the mines of this country. The first is in the case of the gentlemen sent to inspect the Maryland and other mines purchased from a Nevada banker by the Pinto Company, but now known as the Baysie Consolidated of London. It has been, and is still, asserted that they never entered the Maryland, or any of the other mines, to see whether the representations of Messrs. Partridge and Paxton regarding them could be borne out by ocular proofs, but were content to take for granted all that had been related to them of their merits and conditions by the aforesaid vendors. Paxton is a banker, doing business at Eureka, Nevada, and he employed Partridge, whose reputation in mining transactions is well known, to dispose of them in London. This he did with a vengeance, as the members of the last-named company can substantiate. Here was sustained a loss of several hundred thousands of pounds, incurred through the carelessness or ignorance of the experts (?) to whom were entrusted the task of examining them. Should the country at large be denounced because of this loss, or should its mines be considered of no account because of the failure of these wild-cat mines to bear out the windy reports of those who penned them? The other case I reserve for my next week's letter. J. D. POWER.

Tybo, Nevada, June 3.

RICHMOND CONSOLIDATED—ST. JOHN DEL REY.

SIR.—A good deal has of late appeared in the Journal as to the value of Richmond as compared with St. John del Rey. One writer has laboured to prove that silver veins are less permanent than gold quartz veins; but he seems to be utterly oblivious of the fact that until gold quartz veins had been explored in depth in such mines as St. John del Rey, in Brazil and in Australia (which had not been done 10 years since), precisely the same theory used to be set up as is now sometimes done concerning silver veins in Nevada and elsewhere.

Your correspondent, who is forever raising "warning notes," pointing monitorial fingers, and imagining all sorts of impossible eventualities, for reasons best known to himself, always blinks the convincing fact that what has taken place in connection with auriferous deposits is now daily occurring in the argentiferous. Absence of knowledge by reason of non-development created the theoretical spectre which has now forever become de-materialised in face of irrefragable and ever-recurring facts. Does your correspondent know that every silver mine vigorously developed in depth has proved successful—witness those in which English investors are more particularly interested. Richmond, at a depth of 600 ft., is richer and more permanent in character than at any shallower point; and Eberhardt and Aurora, at a depth of 400 ft., is producing an average of \$60 ore (which is \$20 per ton in excess of the estimate upon which the early success of the company was based). I need not refer to the well-known Comstock lode, as that has been so often and so fully described in your columns. In Utah, again, the same results are being realised. I know we have been told that the Emma vein does not hold in depth, but the truth is it has never been tried; that certainly cannot be the opinion of those who originally located the mines on Emma Hill, as, notwithstanding whatever may be said to the contrary, the original locators have been for a long time past (and are now) engaged in heavy tunnelling works in order to cut this vein at a considerably deeper level than the present bottom of the Emma.

If your correspondent is really sincere in what he puts forth, and desirous of forming an accurate opinion upon this most interesting question, he cannot do better than peruse the communications which appear from time to time in your columns, as by these he will most assuredly find that actually realised results, so far from being adverse to the stability of silver veins, are overwhelmingly in favour

of them, and even more so than the obtainable data as to gold quartz veins. As against your correspondent's views upon other points, there is the financial fact that the Richmond Mine has realised a net profit in six months of £3,000, while at St. John del Rey the net profit for twelve months was £8,000.

July 6.

A BELIEVER IN THE FUTURE OF RICHMOND.

CHONTALES—JAVALI.

SIR,—In reply to your correspondent, "W. B. P." I must distinctly deny having made use of any fictitious calculations in any of my letters, as the whole of my remarks have been based on the monthly reports of the actual working of the two mines during the current year. I admit that only a portion of the year's work is before us, but I think I am right in taking the months of December, January, and February as being about the best in the whole season, and I am quite willing to base my estimate of the value of the two mines on the last returns for those months, if "W. B. P." is content. What I object to in his and other letters on this and similar questions is the tendency of the writers to leave the region of solid ascertained facts and deal in speculative statements as to what "may be expected" to result from some problematical concatenation of favourable conditions and circumstances. But, unfortunately for silly people who swallow such statements and invest their money on the strength of them, it is very seldom, indeed, that such statements and expectations are justified by the event; and my argument is this, that the value of the shares in a mine ought not to be judged of by the "expectations" of interested and too sanguine people, but by the plain unvarnished statement of ascertained results in working. I ventured to express my opinion on these two mines, based on the published monthly reports, and I am accused of dealing in fiction and drawing unfair comparisons. I ask any impartial reader of the correspondence if such charges are true? I showed in my last that "W. B. P.'s" own comparisons were unfair, untrue, and misleading, and with regard to his contradictions I must refer him to my former letters, which, if he reads over carefully, he will find do not bear the construction he wishes to force upon them. The foregoing remarks will serve also in reply to many of the statements of "A Shareholder in Chontales." I wonder if he is the same person who in the early part of this year so persistently depreciated Javali Mine and endeavoured to write up Chontales? Why cannot he content himself, as I have done throughout, with stating facts, and let prophesying alone? If it were proper to do so it would be the easiest thing in the world to build up a theoretical future for Javali, far exceeding what he asserts "holders in Chontales may expect in the course of a few months." "W. B. P." says Javali has crushing power available equal to 1500 tons per month, and stamps are erected equal to half as much more. Suppose one were to begin and calculate what would be the profits on that quantity (2250 tons monthly), with an average yield of 12½ dwts. per ton? I will not work out the figures, let your correspondents should charge me with dealing in fiction, but, in the face of what has actually been done at Javali this year, I ask any impartial person if such calculations would not be quite as trustworthy, and equally as justifiable, reasonable, and valuable as those of "A Shareholder in Chontales," published in your impression of June 12?—July 3.

INVESTOR.

THE JAVALI AND CHONTALES MINES.

SIR,—I have carefully read the correspondence on Javali and Chontales Mines. In Javali I note that the stuff crushed continues to yield ½ oz. of gold per ton. In Chontales I observe, in spite of all favourable comments on what it will do, that the yield rests between 3 dwts. and 4 dwts. per ton. What would the Port Phillip give for an average of ½ oz. per ton? Why, it would pay 25 per cent. dividend at once. The reason that the Javali return was not large last month is easily accounted for—want of water during the dry season, and but one third of the usual amount of ore was crushed. Other stamps have yet to be erected, and large returns must follow. The manager of Javali has repeatedly asserted that an undivided ton of orestuff can be found of the same quality (½ oz. per ton). Some portion of this yielded ½ oz. per ton. I have no doubt that these large returns will suddenly be wired, and give Javali Mine a proper position on the Market.

London, July 7.

OBSERVER.

PORT PHILLIP AND COLONIAL GOLD MINING COMPANY.

SIR,—Not long ago telegram after telegram was sent from the manager of this mine leading to the belief that a reef had been struck, yielding 1 oz. of gold and over to the ton. What can be the object of sending such sensational messages? The last return from the mine states the yield to be under 4 dwts. For years past the yield has been wretchedly low, and the profit nil, or next to nothing, but from time to time these flaming accounts are flashed across by wire to perplex and bewilder the shareholders in whose interest I leave you to guess. It is high time the meek shareholders should throw off their sloth and bestir themselves, or their property will become, like the Erie Railroad, only a medium for gambling on the Stock Exchange. We want fresh blood in the management, and we should not be satisfied with the bland assurances of the directors of the value of the property. It may be of value to them, but without dividends it can be of none to us.

A SHAREHOLDER.

ANCIENT DISCOVERY OF LODES VERSUS MODERN.

SIR,—Your correspondent, Mr. Edward Skewes, seems to think that the ancients were more expert in the discovery of lodes than the miners of the present day. That such was really the case I cannot find, either from his letter or any other evidence I have yet been favoured with. I cannot see how that the old working referred to by Mr. Skewes can possibly prove that they found all the lodes, unless you find such workings in the backs of all lodes; and even then what evidence have we as to the date of those operations. If the Phœnicians commenced working at the early date of 1500 B.C., those workings which we look upon as the works of the ancients might have extended over a period of 2000 years. Assuming this to be correct, how can it be thought that they were more clever than miners of these days?

What proof have we that they never resorted to costeaning? We will suppose that costeaning had been done (say) from 2000 to 3000 years ago, where is the person that could now say, with any amount of certainty, whether such ground had been broken or not? I do not refer to places where the rock formation has been penetrated and the lode wrought on, but of mere costeaning to find the lode. If we know that our forefathers found all the lodes, we must be in possession of such evidence as is above stated, which evidence would naturally lead us to the conclusion that all the lodes have been discovered by us, and, therefore, there is no use of trying to discover any others. Mr. Skewes can easily test the virtue of the divining rod if he will only carry it over the backs of some lodes in his own district where he knows the lodes are situated; this will cost him nothing but a little time, and he will have the evidence for himself, without trusting to the assertions of others. It is well known that the Egyptians and Persians were very superstitious, and the Cornish in former years were, no doubt, as superstitious as they. Since, I remember, some people had very great faith in "dowsing," and it was practised to a very great extent. If, then, the results were satisfactory why was it given up? I think that we must have something more effective than this to depend on for the future of mining and the discovery of lodes.

I am not of opinion that the future of mining will depend so much on the discovery of lodes themselves as the discovery of the deposits of minerals in the lodes. All the lodes in a sett may be found with comparatively little trouble by costeaning the surface, but to find the ore is the most difficult problem to solve, for whilst we have some general leading characteristics of productive lodes, yet the freaks of Nature are so numerous that they baffle all attempts to lay down anything like an exact rule. It is a well-known fact that a great number of our richest mines owe their existence to what appears to be the merest chance more than to the sagacity of any individual. I might name instances, but there is no need of my doing so, as many such instances are known to your readers.

You must suppose that I believe in working at random—that ore may as likely be found in one place as in another. No. Such notion is opposed to common sense. We do know where certain minerals cannot be found, but who can say with certainty where they can be found? It is our duty to study not only the general cause of events, but the particulars also, for in some mines it is surprising the effects which some little thing will produce on the lode; it may be for good or otherwise, and, therefore, those changes cannot be watched with too great an interest. This will be more apparent when we consider that every district has its own peculiar governing principles in the deposition of minerals. By this I mean that the same law which will apply in one district will not apply in another; and so it is not only necessary that a person should have a general knowledge of those principles, but a knowledge of those principles which will apply to the particular district or mine in which he mines, and he who does not seek and apply this knowledge is a man unworthy to have the management of mines.

In starting new mines in virgin ground I do not think that too much importance can be attached to the finding the runs of ore ground near the surface, for whatever may be said of the casualties of shallow bunches as a rule the best bunches of ore crop up near to the surface. If no ore can be found near the surface I think that there would be a poor chance of finding it deeper. There are exceptions to this, which I might point out, but from my own personal experience, and from what I have gathered from the experience of others, most of the main bunches and courses of ore have come up to within about 20 fms. from surface, and a great number up to daylight.

If such is the case, and your readers can judge for themselves, it

seems plain that the proper cause to take in starting new mines from surface would be to find the ore at as shallow a depth as possible, and ascertain its run and dip before permanently laying out the mine. In this way the mine could be laid out to the greatest advantage, and at the least possible cost.

JOHN ROBERTS.

Carnarvon, July 7.

ANCIENT DISCOVERY OF LODES.

SIR,—In the Supplement to last week's Journal is a letter by Mr. Skewes on "Ancient Discovery of Lodes," which is very carefully written, is the product of some investigation, and, consequently, gives a deal of useful information. His object is praiseworthy, and evidently his motives are sincere. Looking at the old workings of tin miners in Cornwall, he has been struck with their acuteness of observation, their great sagacity and intelligence in the pursuit of mining, more especially as to the discovery of lodes, as well as more irregular deposits of mineral.

The first point for consideration is—Who were the ancients? If we take the "ancients" to be the old workers, their period is from at least 1200 years B.C. and 1600 A.D., a period of 2800 years. The middle ages of mining may be from 1600 to 1750, previous to the adoption of the steam-engine; and, lastly, the present era of 125 years at most begins at 1750, and comes up to to-day—1875. In looking at a question of such grave importance and lively interest as this, no one should rush into print who has not given the subject more than a cursory consideration, and jumping to conclusions should be carefully avoided.

After extensive observations in different and distant parts of Cornwall I am obliged to differ from Mr. Skewes in several points of importance. It is quite true that many mines have been recently worked where the rubbish had only to be cleared away from the pits, but it is equally true that those pits were sunk in the second period of mining, or between 1600 and 1750, consequently the ancients had absolutely nothing at all to do with them, for even if they had left pits open they would have collapsed long before this. It is certainly a mistake to compare the present as it is with the whole of the history of mining that has rolled into the oblivion of the past, and why should we wonder that many lodes have been discovered in 3000 years, a period long enough to dig all Cornwall down in one vast unfathomable mine. It is unfair to make comparisons of periods so different. Whilst the ancients, having discovered a lode, dug and worked it for some time, until they found themselves overmatched by the water, at a depth of about 30 fms., and then left it to prosecute new explorations, we on the discovery of mineral can follow it down 100 or 300 fms., so there is not now that necessity for discovery that there was then. It may be said that explorations would bring to light new shallow lodes that would pay better than these old worn-out mines, but no one likes to leave a "bird in the hand."

Coming to the two surmises, "our forefathers discovered all the lodes." This is obviously and extravagantly ridiculous, and therefore is unsupportable. Do we not daily hear of new discoveries of distinct new lodes? I suppose by "our forefathers" the ancients are indicated. It is true that they made great discoveries, but not all, not half, or at least we have no evidence to indicate this. His second surmise is positively startling, and egregiously, blindly, obstinately false.

The discoveries of the ancients were made by tracing indications inland from the sea shore, by finding the "backs" of lodes whilst digging their rude huts, and by streaming and following alluvial deposits up to their source—the lodes. They only discovered those lodes that were apparent.

I do not write to make Mr. Skewes the butt of a sneering pen, but really the divining-rod idea is too much. His reasoning has taken the wrong direction, and brought him to the divining rod—the hazel twig. The laws of Nature, the studies of philosophers, the researches of enthusiasts, the labours of savants, and explorations of scientists are ignored, and at a stride we are asked to go back, and believe in ideas, chimeras long exploded, superstitions all but forgotten, clung to by our forerunners with all the tenacity due to a darling thought. What is dowsing? It is the discovery of lodes (supposed, at least) by means of the bending of a hazel twig by invisible agents—a story worthy of Edgar Poe for wildness or Baron Munchausen's adventures for incredibility. Some say it is "magnetism," others "spiritualism," whilst others assert "humbug," and they seem right. If dowsing is the real way of finding lodes, and Mr. Skewes's bias seems to lead him in that direction, then what avails all science, all observation? Let one and all throw off childish ideas and buckle firmly to their work, establish Cornish mining once more, and may it go on and prosper ever.

July 6.

ANCIENT DISCOVERY OF LODES.

SIR,—I find from a perusal of Mr. Skewes's letter on the above subject that he thinks our forefathers could discover lodes by some method which we, in the 19th century, are ignorant of. I grant that our forefathers discovered a great many of our lodes, but I do not see that we are to positively conclude that they really possessed some secret art of discovering lodes, because of the number discovered and worked on. Mr. Skewes very properly says that our forefathers "May have traced some of the lodes inland from the cliffs," and "others may have been exposed at the surface." Of course, lodes exposed to view would be at once worked (if productive); and during 30 years' practical observations I have never known a productive lode that was not intersected by other lodes, branches, cross-courses, &c., and these striking off in other directions, some at right angles, and others in oblique directions, would very naturally lead the miner off, so as to make other discoveries on other lodes.

Again, I find wherever productive lodes have been discovered which have not been visible at surface, the rule has been that some indication of the existence of lodes has been visible, such as shodestones of gossans, and springs of water, "some of them holding considerable quantities of iron, copper, &c., in solution," and intelligent miners are often guided alone in their discovery of lodes by means of the above-named indications. I remember crossing the Caradon Hill over 30 years since with my father, and he called my attention to some loose stones of gossan on the surface, saying that he had not the least doubt but that there was a lode near where we were standing. Since that time the discoveries of South and East Caradon have proved that we were walking just over the course of the celebrated caunter lode, which has produced such immense quantities of rich quality ores in the two above-named mines. Then, again, Mr. Skewes tells us that the "Phœnicians came to Cornwall for tin 1500 years before Christ;" and I am of the opinion that a vast number of accidental discoveries must have taken place during such a long period. I have heard of several lodes being accidentally discovered since I can remember that very rich lode at Wheal Trelawny and Mary Ann was found in sinking for a gate post, and many others by draining land, cutting water-courses, &c.; therefore I think it very possible that the above-named causes may be quite sufficient to account for the discoveries of our ancestors during a period of 3300 years.

At the close of his letter Mr. Skewes asks the question—"Can lodes be discovered by dowsing?" I have talked with some very excellent miners on the subject, and some of them completely ignore the question altogether, whilst others equally as clever and intelligent seem to be believers in "dowsing," and as it is far easier to ask than answer questions, I generally ask the non-believers, "How do you know there is no virtue in dowsing?" And to the believers I say, "Can you prove there is virtue in the dowsing rod?" And I am told by the one party that they have tried themselves, and have seen others try the rod, and all have been a perfect failure. And the other party tells me where lodes have been discovered by the "dowsing rod," and they have seen the rod bend with an irresistible force.

Seeing, then, that there is such a diversity of opinion on the subject, I should very much like for one of the "dowsers," if there are any left in the county, to settle the question by giving the "unbelievers" a practical proof of their power to discover lodes by the use of the "dowsing rod." I take it for granted that Mr. Skewes is a believer in "dowsing," therefore I hope he will give us some facts of its power of discovering mineral veins, and, if possible, explain the reason why a hazel rod will be attracted when crossing a

lode, and any other information he may feel disposed to communicate on the subject will be conferring a great benefit on the inhabitants of the county, as I believe there are many fine deposits of mineral yet stored in the county, which I shall be glad to see unearthed even by the use of the dowsing rod.—July 6.

EAST CORNWALL.

TWO DAYS AT THE FEET OF GAMALIEL.

SIR,—I am credibly informed, by one of the cloth, that the following answers were given by a brilliant aspirant for holy orders at a recent examination in divinity:—"Who was Paul?" "Paul, sometimes called Saul, sat at the feet of Gamaliel." What do you know of Gamaliel? "Gamaliel—high mountain in Syria—at the feet of which Paul sat." (Examiner's eyebrows considerably arched.) Why Herodias's daughter after the governor had forbidden his addressing her, "Sir," said the astonished don, "Sir, you may retire; you had better take orders in the commercial line."

Now, my Gamaliel is somewhat in the commercial line, although his business is, as it ought to be, dignified by the name of *profession*, and he is, as he ought to be, at the very top of it. A whole life devoted to one pursuit, even with a dull intellect, will produce mediocrity, but with natural brightness and logical proclivities *excellence* is bound to be the result.

Genius does what it must, talent does what it can.

And so it is in this case; but you mistake me entirely if you think that there will now follow Gamaliel's real name, and that I shall use columns not devoted to advertisements to the puffing of my very famous friend's scientific qualifications, followed by his business address. He neither wants my help, nor even yours—great as that is! His destiny is achieved. He has not only deserved, but commanded, success. So much by way of prelude! Now for the burden of the song. I will strive to lead you by a sort of metaphorical hand, first, to the mountain at the foot of which my Gamaliel sits, then to the scenes through which he led me, and, finally, to the objects of our inspection.

Imagine, then, your scribe *solus*, leaving the city of his adoption, and scudding along at 40 miles an hour south-west to Crewes, then past Nantwyck, Northwyck, and Middlewyck, as the old Saxon spelling ran, *wyck* meaning, as you know, salt spring. Here I am told that another proof will soon be given that "the children of this world are wiser than the children of light," and that Mahomet's profound bit of humbug (monstrous clever fellow that same Mahomet was!) when the mountain would not come to him, he alone in the whole crowd knowing it would not, jauntily said—"Well, then, Mahomet will go to the mountain!"

So, for hundreds of years, the coal has been dragged at huge cost to the brine; now, the brine is to be carried through some 30 miles of piping to the coal! Like Columbus's egg—how easy it is when you have seen it done! All wonder it was never thought of before. Well, it is just like a proverb—"The wisdom of many, but the wit of one." The general, almost universal, world wags on in its old accustomed groove, when suddenly some *genius*—it may be some village Hampden or horn-fisted Watt—springs off at a tangent, and crying behold! it may be, lightning is harnessed, weight reduced from lead to feather, friction all but annihilated, and a force of 30,000 lbs. to the square inch evolved from a tumbler of cold water mixed with air! Salt is not dear now, there being I do not know how many pounds for a penny. What will it be then? Perhaps, just as much, and our typical *genius* will pocket the difference—and so he ought—for awhile!

Tribute to whom tribute, honour to whom honour.

Now, Mr. Editor, if you should ever be following my track, and want to get all the beauty out of the country through which you are passing, and are bound, as I was, to Oswestry, do not get your "back to the horses," and, with your fez or puggaree pulled over your eyes, devote yourself to "silent sleep, sister of death," but rouse up all your artistic faculties, and instead of going direct from Whitchurch junction to Crosseswald—Oswald's Cross corrupted, nay, not corrupted, altered to Oswestry—take a return ticket to that sleepiest of sleepy Shropshire towns—Wem—and post thence to Hawkestone—proud seat of Salop's proudest chieftain, Lord Hill. Everything that can combine to make a house worthy of its site and a site worthy of its house you will there find. The martial Hills have blent their fiery patrician blood with the thicker, darker, more sluggish fluid of Lancashire (but, by-the-bye, the grosser fluid had strong gleams of gold therein); well,

Cloth of frieze, be not too bold,
Though thou art wed to cloth of gold;
And cloth of gold, do not despise,
Though thou art wed to cloth of frieze.

Having exhausted hall, stables, gardens, grotto, park, &c., and done "something for the good of the house" at the Hawkestone Arms, post or walk to Ellesmere; until you reach Welshampton there will be nothing worthy of your remark, but beyond you get into the lake district of Shropshire, and although, if one had had to arrange the little matter oneself, it is possible we might have placed these lovely lakes—Newtonmere, Blackmere, Kettlemere (habitat of royal fern), Whitemere, Crowsmere, and loveliest of all, Ellesmere—in the southern part of the county, and thus give still increased beauty (where it is not needed) to Ludlow, Church Stretton, Bridgnorth, Coalbrookdale, and Wellington; but as the Supreme Artificer, with boundless power and boundless love, spreads the whole universe with beauty in some form, He so distributed the charms of charming Salopia as to render north and south objects of equal, but distinctly different, interest. Born on the banks of one of these beautiful meres (there is something in the very word even that one loves, something so infinitely softer and more musical than lake, loch, or lough), born and bred there, I hardly dare even try to tell you how beautiful this district is.

The town of Ellesmere, situated on the northern bank of the largest and most picturesque of these charming sheets of water, must be seen from the south-east side, where Oteley Hall, the seat of the Mainwaring, is artistically placed, beautiful in itself, and more beautiful even in its surroundings. Built on the edge of the mere, and on the skirts of a handsome well-wooded park, it at once strikes you as a brilliant brilliantly set. Cobhill, a luxuriantly wooded island at the southern end (to matron swans a safe and snug retreat at stated and interesting intervals), the rustic old boathouse, Castle Hill (with its battle field adjoining), now one of the best, as it is one of the most romantically situated, bowling greens in the kingdom—second only, if second, to Denbigh, but charitably devoted on the first Wednesday in July to the members of what is called the Ladies' Club, on which, after the usual procession of its members to church, generally headed by the reigning beauty, from six to nine the green is given up to dancing, tea, &c., and there you may perchance dance with, and most certainly see, the highest and the fairest the county can show. "Charity," it is said, "covers a multitude of sins," here she displays a multitude of charms.

Ladies of dear Salopia! my charming countywomen! never, never let this old club die!

In youth it charmed me, and I'd protect it now.

What misery and woe that club has spared! what comfort, what happiness, what joy has it not been the means of distributing! With what a throbbing heart and tear-blinded eye have I from boyhood watched the leisurely and sometimes feeble tread of its elder members in their annual procession through the main streets of the town, preceded by its local band awaking the echoes with "Drops of Brandy," "The Miller's Wife," "The Girl I Left Behind Me," or "Roy's Wife of Aldivaloch"—tunes never heard in the West. Immediately succeeding are the lady patronesses, and then, marshalled in double file, the matriarchs of the club, with their daughters, grand, and great-grand daughters, following all "in order due," the ranks broken here and there by the standard-bearers, and every unit of the whole carrying her flower-tipped staff, and decked in all her best!

Oh, that all charity could be presented in this lovely guise, and the poor recipient not made to eat in bitterness the doles of smileless faces and sable hoods!

Let me remind your innumerable readers that this now almost unknown little market town was well known in old coaching days, when the Royal Mail, L'Hirondelle (the latter with Jordan driving, and Charlie James, with his unequalled Kent bugle, as guard), passed through it, and when the very best in the land passed through it on

The success of every enterprise depends upon the means employed in its prosecution, and if these are disproportioned or improperly applied the results will be, if not absolutely *nil*, considerably diminished. If mining were prosecuted as are the greater number of other enterprises, with the practical skill and intelligence which should be brought to bear upon it, the number of its failures would be largely reduced, and its successes proportionately multiplied. A more clear and outspoken judgment would be expressed concerning the merits or otherwise, as a greater responsibility would attach to those undertaking the duty of advising concerning them, and thus a better guarantee would be provided for investors, and dividend mines, instead of being few and far between, would be found of

much more general occurrence; in addition to which, thousands sterling would be annually saved from the non-working of hopeless adventures.—*Llanrwst Lead Mines, July 6.* ROBERT KNAPP.

PEAT FUEL.

SIR,—The following extracts will introduce the interesting subject referred to:—

From the *MINING JOURNAL* of May 30, 1874.
A WARNING, AND PROPHETIC.—It would serve a very useful purpose in England to circulate the fact that air-drying alone is the only really practical mode of treating peat deposits. An immense amount of capital is likely to be wasted here in experimenting upon complicated peat machinery. There is one caution that needs to be very strongly impressed upon the public—out of the hundreds of thousands of acres of bog land existing in this country, which some enthusiasts think is capable of producing marketable peat fuel, a very small portion really is suitable. The immense deposits in Cheshire, Lancashire, the Eastern Counties, and elsewhere, are not really peat bogs, they are only mosses, as they are often locally called. They are, in fact, many ages too young to be used profitably as fuel. But in the higher and more mountainous parts of Wales many deposits of deep hard black bog are to be found, which almost equal coal in density, and which possess a power of combustion far superior to coal, burning away so completely as to leave only a residuum of ash of about 5 per cent. These deposits are not very common, but depend upon it they are the only ones which can be profitably worked now. I understand that in the course of the present year some of the produce of such peat deposits is likely to be brought into the market.

From the *MINING JOURNAL* of July 3, 1875.
FULFILLMENT OF PROPHECY.—PEAT FUEL COMPANIES.—The Highland Peat Fuel Company (Limited) is at present in liquidation, and claims of creditors advertised for. As to the Dumfriesshire Peat Fuel Company (Limited), it is now notified that at the meeting, on Tuesday, it was resolved to dissolve the company, which was registered in September, 1875, for manufacturing by Clayton's process.

I believe that now (July, 1875) no companies are left out of the large number which attempted to utilise peat by using machinery. It matters not under what process the attempt is made. All will be equally ruinous in this kingdom. Again, this summer I have visited Carnarvonshire, and feeling curious to ascertain whether the adventure to which I alluded in my letter of May 30, 1874, had gone the way of other peat companies, I extended my rambles to Portmadoc. There I saw the proprietor of the undertaking to which I alluded last May, who explained to me his operations. I was glad to hear that my former opinions had been so amply verified. The operations have been continued upon a large scale, and are now in full swing. A great quantity of the fuel is ready for market at the works, and is only waiting for the final opening of the new narrow-gauge line—the Goredde and Portmadoc Junction Railway—upon which it is situated, high up the valley, about 5 miles above Tremadoc. When the line is open a continuous supply of fuel will be sent down to Portmadoc, where a depot has been established. I should advise those of your readers who are at all interested in such subjects to visit the works, which are called the Ereniog Prepared Peat Fuel Works, near Tremadoc. A CONSTANT READER.

July 5.

THE PIRACY OF PLATTNER.

SIR,—It is satisfactory to find from the editorial remarks appended to my letter published in the *Mining Journal* of July 3, that the reprint of Plattner, lately brought out in London, was recognised as such, though it seems to puzzle and amuse the London publishers generally to know that they can purchase the copyright of an author's name—and of his name only—for a book. If all respectable London publishers do not as a body show their disapproval of this act by compelling the firm inculpated, on pain of the cessation of commercial intercourse with them, to burn or suppress the remainder of their pirated Plattner, for the very woodcuts have been reproduced from those of the American or German editions, the consequence will be that cheap editions of our most expensive and laborious works will be transatlantically produced in retaliation.

It is, indeed, shocking to see what ought to be a source of honest profit and pride to the authors of both countries—the identity of language—converted by unscrupulous publishers into a means of impoverishing, if not of ruining, them, in direct proportion to the value of their works. If publishers, assuming to be respectable, are to be allowed to do such acts as this with social as well as legal impunity a fearful state of (typographical) society must necessarily ensue. We shall be at mutual "daggers drawn" with each other. We shall have Murray or Longman on one side the Atlantic, and Van Nostrand or Orange Judd on the other, piratically waiting for each new American or English work, sword in hand, like the celebrated duellists in the old rhyme. Although there is no international copyright there is an international though unwritten honourbright observance between the gentlemen publishers of both these great nations which has hitherto been unbroken—at least never so grossly as in this case—and it would be a splendid feat of statesmanship for both Governments if they could inaugurate the centenary of Independence by an international copyright.

Midfearn, Shepherd's Bush, July 8.

W. A. ROSS.

[For remainder of Original Correspondence, see to-day's Journal.]

SMELTING OPERATIONS OF THE TECOMA MINING AND SMELTING COMPANY, OF UTAH AND NEVADA.—The mines of this company are located in Lucin Mining district, 6 miles south of Tecoma Station, on the C. P. R. R., and the dividing line between Utah and Nevada passes through the property. The ores are chiefly ferruginous carbonates of lead. They are arbitrarily divided into two classes. The first-class ores are the grey and black carbonates, assaying 45 per cent. to 70 per cent. lead, and 10 ozs. to 40 ozs. silver; and also a fine ochreous ore, assaying 20 per cent. lead and 60 ozs. to 90 ozs. silver; it will vary by measure per ton from 12½ cubic feet to 17½ cubic feet. It is self-fluxing, and when free from molybdate of lead it is very easily smelted with ordinary care. The second-class ores are those poor in both silver and lead. They are very calcareous and ferruginous, containing some zinc, and as much as 30 per cent. oxide of iron. They are too basic to smelt alone, but with the addition of silica or two-thirds of first-class ore can be worked with profit: 20 cubic feet weigh 1 ton. The smelter was ¼ mile from the mines, and was leased from Buel and Baltimore at \$400 per month rent. It was represented to be in perfect repair, and fully equipped with tools, &c. The tools consisted of two grinders, a large, six slag pots, and a few old shovels and picks. To repair the furnace, engine, water pipes, building, &c., and the purchase of the necessary tools cost over \$1200. The furnace was of Piltz pattern, with a movable top; hexagonal outside, with iron plates at the base, and the usual iron bands around the sides; section at tapers 30 × 36 in.; five tuyeres with 2½-in. nozzles; tuyeres 10 lines above the dam plate; height above tuyeres, 10 ft.; section at top, 36 lines × 36 lines—siphon top. The blast was supplied by a No. 9 Sturtevant blower, put in motion by a 10-horse portable threshing engine, which also worked by a small pump, the waste water from the tuyeres being pumped back into the receiving tank. The fuel used was Connelville coke and charcoal. The coke costs at the works \$44.08 ton, but the waste and short weight amounted to 9.3 per cent., which made it cost \$48.18. The charcoal was of the finest description, made from nut pine and mountain mahogany, and weighed 19 lbs. per bushel. It was delivered at the works at 23 cents per bushel, all passing through an inch fork, and all brands were rejected, so that there was no appreciable waste. It was very much regretted that the charcoal could not be exclusively used, but a constant supply could not be depended on: it had to be burned during very severe winter weather, and from contracts let for 30,000 bushels, only 7000 were delivered in time. At the close of work, by great good luck, the only material on hand was 400 bushels of charcoal. Unlike the ores near Salt Lake, a siliceous flux was needed, but the only available silica in any quantity was obtained near the railroad at \$3 per ton. It was in fine sand, and was found to contain nearly as much lime as silica, and in working it increased the loss of metal by carrying off particles in blast, and frequently rolled to the bottom of the furnace without combining with the charge, so that its use was soon abandoned. A small quantity of quartz, containing 1 oz. of silver, from one of the adjacent mines, was obtained at \$5 per ton. It worked extremely well for our purposes, but on account of the difficulty of mining transportation, and the owners considering that it was a valuable silver ore, it was delivered only in small lots of 700 lbs. or 800 lbs., as a personal favour. It served as a dose for the furnace when in trouble rather than as a flux—close watching, and varying the proportions of the first and second-class ores, had to be relied on for successful working, and of the latter as much was used as the furnace would stand—generally about one-third. On account of the economy in the first repairs of the works, the mechanical feed was left, but from the difficulty of controlling the working of the furnace it was removed and replaced by the brickwork at the first opportunity. Two the tuyeres were also removed, with a decided advantage to the lining of furnaces and smelting of the ore.—JAMES P. CARSON, E.M., in the *American Chemist*.

EXTRACTING METALS FROM THEIR ORES.—The invention of Mr. R. STONE, of Liverpool, has for its object—1. The utilisation of the waste and inflammable gases given off during combustion in the furnace or cupola used for the smelting of metals. The waste gases are brought down through suitable pipes or flues from the mouth of the furnace or cupola (where they are emitted) and returned to the bottom of the furnace either separately by a distinct exhaust and blowing apparatus for that purpose, or in combination and connection with the ordinary blast pipe or pipes.—2. The introduction of steam separately into the furnace or in combination with the return waste gases, or in combination with gases generated by heat from any of the known salts that give off oxygen.—3. The introduction of a spray, jet, or jets of hydrocarbon oil or spirit into the furnace, either in combination with a jet or jets of steam, or cold or heated atmospheric air, or separately.—4. The utilisation of the said waste heat and gases arising from the furnace or cupola for heating a chamber, or pipes through which pass the blast pipes of the furnace or cupola.—5. Apparatus and arrangement of same for carrying the before-mentioned method into operation.

Meetings of Public Companies.

CAPE COPPER MINING COMPANY.

The twelfth ordinary general meeting of shareholders was held on Wednesday, at the City Terminus Hotel, Cannon-street, Mr. E. A. PONTIFEX in the chair.

The CHAIRMAN said that the directors submitted to the shareholders the closing statement of the profit and loss account of 1873, the profit and loss account for the year 1874, and the balance-sheet to December 31, 1874. They had been enabled to publish the 1874 profit and loss account a year earlier than hitherto, owing to the near completion of the railway having greatly expedited the arrivals of ore. At the meeting in July of last year he mentioned that the estimated profits of 1873—of which a considerable portion of the raising had not at that time arrived—would probably amount to about 49,000*l.* That was a considerable diminution of the profits of the previous year, and the complete accounts showed that the profits were not even quite so large as was estimated, being only 46,892*l.* This deficiency was almost entirely due to the fact that the ore and regulus did not assay quite so high at Swansea as was anticipated. This profit was irrespective of 10,000*l.* which had been added to the working cost of the railway, towards the fund with which it was intended eventually to liquidate the cost of the railway; it was also irrespective of 15,547*l.* of undivided balance of 1872. Those three sums together amounted to 72,439*l.* The profits earned in 1873 were exceptionally small, but the diminution was due to causes equally exceptional and transitory, which he explained at the last meeting. The shareholders were also then told that they might look forward to more favourable results for 1874, and he was happy to say the facts had realised the anticipation. He then stated that, assuming the returns continued at the same rate as for the first four months of the year, and the price of copper remained at 15s. 6d. per unit, the profit for 1874 would be 68,000*l.*, but as a matter of fact it was in excess of that amount by 23,000*l.*, the profits having been over 90,000*l.* This increased profit was, to the extent of about 14,000*l.*, due to a rise of 11d. per unit, 16s. 5d. being the price realised instead of 15s. 6d. The cost per unit had conformed as nearly as possible to the estimate, the only alteration being a slight diminution arising from the increased output, which had lowered the cost of production; it was also due in a measure to the fact that a considerable portion of the increased returns had been taken from the surplus reserves, the cost of mining which had been borne by previous years. But for those two causes it was probable that the cost would have increased instead of diminished, because, of course, as the mine got deeper they must expect the mining cost to somewhat increase. The year 1873, owing to a break-down of the pumping arrangements in consequence of the increase of water in the mine, was an exceptionally bad year, and it would not be fair, therefore, to compare that year with 1874; but, taking the preceding year of 1872 (which was a fair average year) for the purpose of comparison, it appeared that in 1872 they raised 4721 colonial tons of crop ore and 3389 tons of ragging and hutch ore; the crop ore was the rich clean ore, and the ragging and hutch ore was obtained from the inferior ore, which required dressing. In 1874 there had been only 3674 colonial tons of crop ore and 6504 of ragging or hutch ore, and, therefore, although there was no exact return showing how much was got from the mine and how much from the surface reserves, the probability was that the larger portion of the increase was got from those reserves. It was very satisfactory to know that there was still a large quantity of surface reserves; Captain Tonkin estimated, on February 13 last, that they had sufficient to produce 4500 tons of 23 per cent., the net value of which at 16s. 6d. per unit would be 45,000*l.*, and certainly Capt. Tonkin did not usually err on the side of being over sanguine. These surplus reserves were not accumulating now in the same proportion that they had hitherto; the reason for their accumulating so largely as they had done in previous years was that there had been no water with which to treat them, but now they had got down deeper there was more water to dress the ore, so the water, which is a bug-bear to most mines, was a God-send to us. The directors were rather sorry that the agent had not increased the output from the mine to a greater extent; they knew he was a cautious, safe man, and they did not wish him to be otherwise, but they thought that the output might be somewhat larger, and the board had communicated with the superintendent and agent on the subject, because if the price of copper continued low they would have to depend upon an increased output in order to keep up the present rate of dividends. The directors had, therefore, urged upon the superintendent and mining agent the desirability of increasing the output, having due regard to safe and economical working. Another matter which had caused the directors disappointment was that the assay had fallen off to some extent. This was attributable in some degree to the addition of poorer ores from the reserves, and partly to the fact that the mining agent, no doubt for good reasons, had been paying a good deal of attention to clearing out the stopes in the upper part of the mine; therefore, he hoped that this falling off in the assay would be temporary, and that shortly the assays would change for the better. With respect to the returns and cost, in 1873 they returned 7720 net dry tons; and in 1874, 10,206 tons; in 1873 the Swansea assay was 32 per cent., and in 1874 30 per cent.; in 1873 the cost was 12s. 7d. per unit, and in 1874 10s. 9d. per unit, whilst the price obtained was 15s. 7d. in 1873 and 16s. 5d. in 1874, and the profits for the two years were respectively 56,000*l.* and 91,000*l.*; thus the quantity returned, the cost of raising, and the price obtained were all in favour of the company for 1874, and the only drawback was that the assays were not so high as might be expected. Referring to the Trial Mines, he said that the operations during the year had not been very encouraging, and he was afraid he must include the mine of Spectakel in the same category as the Trial Mines. As long ago as 1867 he referred to the wearing out apparently of that mine; on the whole, it had lasted longer and yielded better results than could then have been expected, and he hoped it might some day resume the character of producing the best ore from the Namaqualand district, for it was difficult to believe that a mine which had once been so rich should suddenly give out. Amongst the other trial mines the only one which looked promising was the Karolusberg. Ookiep was, in fact, their sheet anchor, and he was happy to say that it seemed capable of holding the ship in safety for some years to come. At the same time the directors would continue, within moderate limits, to seek additional mines, and it was almost impossible to believe that they would not soon find them, as the country was exceedingly rich, and the indications were very numerous. It was this knowledge and this faith in the future which emboldened the directors to make the considerable outlay in connection with the railway to which he had now to refer. At the end of last year the railway was completed to within 16 miles of the terminus, and it has now advanced to within about 12 miles, therefore it would be soon finished, and the company be receiving the full benefit of it. Up to the end of last year its construction had cost 118,000*l.*, and added to this there was the present value of the working and rolling stock—14,000*l.*, and one or two other items, which brought the entire amount up to 143,000*l.*, irrespective of 43,351*l.* standing to the debit of the railway and mule train, and general materials in store at Port Nolloth. The directors had put 68,000*l.* to the reserve and sinking funds, besides reducing the liability by over 36,000*l.*; and to be able to do all this, and at the same time carry on the ordinary working, and place matters on a thoroughly safe footing, ought, he thought, to be satisfactory to the shareholders. (Cheers.) A shareholder at the last meeting seemed rather alarmed lest the directors had divided up too closely, but he thought the gentleman would now see that there was no ground whatever for his alarm, and he thought the shareholders had no reason to complain of the results obtained from the amount of business done, and they might thoroughly rely upon it that the credit of the company would never be unduly stretched by its present directors. (Hear, hear.) During the last year the reserve and guarantee funds had been increased by 9602*l.*, making the total sum which he had named just now. The traffic on the section of the railway which had been finished had gone on satisfactorily increasing, and as soon as the whole line was completed, and not

burdened with carrying up materials for its own creation, the manager would direct more attention to the arrangement of the traffic, and no doubt considerably reduce the cost of transport. As regarded the outbreak of typhoid fever, it arose from the increase of population, consisting principally of native labourers, who were uneducated, and apparently uneducated, in sanitary matters; the population at Ookiep station, which was 850 in 1870, is now nearly 2000. The superintendent had been empowered and urged to take every precaution, and from the anxious desire he had shown for the welfare of those under his control there was no doubt that any plan that can be adopted to remove the evil would be earnestly carried out. The sufferings of the natives had been aggravated by the almost total destruction of their crops through the drought, and the directors had instructed the superintendent to expend a sum not exceeding 500*l.* in assisting the farmers to purchase seed corn, and as this company derived so large a revenue from the district he had no doubt that the proprietors would approve of the step. (Cheers.) In conclusion the Chairman moved the adoption of the report and accounts.

Mr. OSGOOD HANBURY seconded the resolution, and the CHAIRMAN, in answer to a SHAREHOLDER, said that the reserves of ore which were alluded to in the report were those which were actually in sight, but these were by no means the limit of the capability of the mine; on the contrary, the more ore that was taken from the mine, the greater were the reserves proved to be.

Mr. JOHN TAYLOR said the agent had instructions, in calculating the reserves, not to take anything into account which he could not walk round; even then, of course, the estimate was liable to error, inasmuch as there might be some little falling off in some of the reserved ore, but it was the safest way of estimating such reserves. In estimating them the agent had taken as nothing the ore which was under his feet in the 68 fm. level. The directors were looking forward with great interest to the discovery of ore in the 80 fathom level, which, of course, would add greatly to the value of the property.

A SHAREHOLDER asked whether the mule train would be done away with when the railway was opened?—The CHAIRMAN said that the mule train would, of course, be superseded by the railway, but many of the mules would still be required to carry the ore on the railway.

The resolution for the adoption of the report and accounts was then put and carried.

The CHAIRMAN moved the re-election of the two retiring directors—Mr. Adolphus Focking and Mr. John Galsworthy, and bore testimony to the great value of the services which had been rendered to the company by these gentlemen.

The resolution was seconded by a SHAREHOLDER, and carried. Mr. FOCKING and Mr. GALSORTHY returned thanks for their re-election.—The auditors, Mr. Robert Fletcher and Mr. F. W. Collard, were re-appointed.

A vote of thanks to the Chairman, directors, and managers (Messrs. John Taylor and Son) closed the proceedings.

CARDIFF AND SWANSEA SMOKELESS STEAM COAL COMPANY.

An extraordinary meeting of shareholders was held, on Thursday, at the Cannon-street Hotel.

Colonel J. D. SHAKESPEAR, F.G.S., in the chair.

It will be remembered that on June 8 last, at an extraordinary meeting of shareholders, a committee was appointed to investigate the circumstances of the purchase by the company of the Pentre and Church Colliery, and the subsequent management and expenditure at the colliery, and to investigate all other matters connected with the company, and report thereon to an adjourned meeting. The committee was composed of the following gentlemen:—Messrs. G. J. Wilson, W. H. Bell, Marcus Moxham, L. B. Kenway, W. Bell, H. B. Barclay, F. N. Charrington, and W. Dawson.

The present meeting was held to receive the report of the committee, and the notice calling the meeting was read by Mr. JOHN DAVIES, the secretary.

The CHAIRMAN said he believed the committee had carefully given themselves to the work which they had been deputed to undertake, and he believed that Mr. W. H. Bell was prepared to present a report on behalf of the committee.

Mr. W. H. BELL said that two of the gentlemen who had been nominated on the committee had not acted—Mr. Kenway and Mr. Bartlett, and, therefore, the report was the report of the remaining members of the committee. On behalf of the committee, he now presented their report, which he would ask the secretary to read.

Mr. DAVIES read the report, which was as follows:—
Your Committee, in compliance with the terms of the resolution, have carefully investigated all the particulars attending the purchase and subsequent management of the Pentre and Church and also of the Resolven Collieries. They held several meetings, and examined some of the directors, the promoter, some of the employees at the collieries, and others; and in the result have to report that, whilst they are satisfied that much of the large expenditure has been lavish (more especially at the former colliery) they are unanimously of opinion that the directors and all are responsible for it. They think it only right to add that, although in withholding the correspondence with the Government Inspector, Mr. John Cory was guilty of indiscretion, they cannot impute to him any fraudulent intent, and are satisfied that he was no party to the falsification of accounts at Pentre. With regard to the purchase, your committee feel that, whilst much larger sums were paid for the properties than they would now realise, those prices were little, if at all, in excess of what was current at the time these collieries were acquired by your company. [With reference to the future management, and with the view of making the best of a really good property, your committee recommended, as the only basis on which the undertaking can be successfully carried on, that both collieries be placed under the management of a thoroughly competent mining engineer, who shall be the general manager, reporting direct to the board, and that he shall attend the meetings of the directors to give such explanations and advice as may be required, and further that he be allowed such assistance at each colliery as he may consider necessary; the expense attending this your committee are not prepared to report upon, feeling it would be premature to enquire into it until the views of the shareholders as to its adoption had been ascertained.]

Your committee recommend that all future expenses be charged against revenue, and that the capital account be instantly closed, unless, indeed, it should be determined to proceed with the sinking of the two pits already commenced at Resolven, and also to sink another pair of pits to win the Nos. 2 and 3 veins, together with the extending of the two old pits from the Four to Nine Feet vein at Pentre and Church, the cost of which should, of course, come out of the capital. At present the capital account of the company stands as follows:—Ordinary shares issued, 228,190*l.*; ordinary shares unallotted, 38,550*l.*; vendors' shares fully paid, 132,260*l.*; debentures bearing 6 per cent. interest, 151,580*l.*; less paid off, 50,580*l.*; making a total of 501,000*l.*. After crediting the unallotted amount on the ordinary shares issued, less due for outstanding debts, there remains a balance, in round numbers, of 40,000*l.*. The debentures are in the hands of the vendors, and the company are under terms to redeem 51,000*l.*, part of them, within two years, and 50,000*l.*, the remainder, within three years from this date, whilst their whole available assets for all purposes, unless the debentures be renewed, including the 38,550*l.* on unallotted shares, which it cannot be expected will, in the present state of trade, be taken up, amount to 75,550*l.*

Having regard to the foregoing financial position of affairs, your committee had several interviews with Mr. John Cory and Mr. Yeo, representing the vendors, and they are bound to admit that they were met in a candid and business-like manner, and as the result of much negotiation, the following terms were agreed to, subject, of course, to the approval of the shareholders:—That the vendors should take up the unallotted shares at par, applying the amount in the liquidation of debentures to an equal nominal value, thus reducing the latter to 62,450*l.*, which they would consent to receive in three equal instalments, payable respectively at 10, 15, and 20 years from the present date. That the 228,190*l.* ordinary shares issued, and the 38,550*l.* unallotted, proposed to be taken by the vendors, shall be converted into preference shares, bearing a dividend of 7 per cent., restricted to the earnings of each year, but participating to the extent of one-third of the surplus net profit beyond the sum necessary to meet such dividend, leaving the remaining two-thirds of such profits applicable for dividend in the vendors' shares of 133,260*l.*

Your committee succeeded in obtaining these terms only after much discussion, and they now leave them for the company to deal with as they may consider best, observing, however, that their acceptance, which will have the effect of reducing the debentures by the issue of the unallotted shares at par, and obtaining the long extended periods for payment of the balance is highly important in the interests of the company, seeing that it leaves the before-mentioned 40,000*l.* available for future expenditure on the pits should it be deemed advisable to proceed with the sinking of them. We take this opportunity of tendering to Col. Shakespear our thanks for the documents which he has handed us.

Mr. W. H. BELL proposed that the report be accepted. He said that the committee had given to it a great deal of time and consideration, and he hoped it would meet the views of all the shareholders. Apart from any further expenditure on the colliery, they would have to redeem 51,000*l.* in two years—that was the position they were in unless the compromise mentioned in the report was carried out, whilst the only assets available were the 40,000*l.* balance of unallotted capital and the unallotted shares of 38,550*l.*, which could not be got rid of under existing circumstances, so that unless restrained by a legal process the vendors would be entitled at the time mentioned to insist upon payment, and could wind-up the company, and there would be an enormous loss of capital, whereas if the conditions of the agreement referred to in the report were carried out they would have to pay 1*l.* per share, and the remaining 2*l.* per share could be called up if necessary, and expended in the interests of the company. The debentures would not only be sensibly reduced in amount, but the payment would be extended over a considerable time, commencing ten years hence, and before any of the profits found their way into the hands of the vendors (except, of course, on such

drawing any conclusion whatever, leaving that for shareholders to do for themselves. As a member of the committee he was bound to direct attention to these facts, for he had taken the course they had done.

Mr. T. E. W. THORP said the fact that the Messrs. Vivian had brought the mine into a satisfactory condition, and the present manager was obtaining the credit for it.—Capt. RICH said after that remark he was forced to mention that in the first four months' account there had been brought up one month extra, and at the first meeting it was proposed to make a 16-weeks account, which was not up till tomorrow, and the tin was sold up to last Saturday. He was not comparing his management with that of the Messrs. Vivian, but it was but fair to himself to remind the shareholders that the present results were being realised with tin at 20 $\frac{1}{2}$ per ton less than had been realised under the former management. Had they during the past four months had the increased price of 20 $\frac{1}{2}$ per ton instead of the accounts showing a profit of 1500*l.* it would have amounted to over 2000*l.* more. Now as to the reserves, all he had to say was he had pinched out the men and not the reserves, therefore he was not working the mine fast. He had pinched the men out of the stopes, and put them on the ends.

The CHAIRMAN then proposed that a vote of thanks be given to Capt. RICH for his successful management of the mine.—Mr. ROSS seconded the proposition, which was put and carried.

Capt. RICH, in acknowledging the vote, said that it was very painful to him to hear comparison made between the former and the present management. All he could say was that he returned the shareholders his most sincere thanks for this renewal of their confidence, and so long as he was honoured with it would he use every effort to carry on the mine successfully. He had no control over the price of tin, but he would try to work the mine as cheaply as possible, and he trusted with success. He hoped to continue to be honoured with the shareholders' confidence for many years.

Upon the proposition of Mr. COULDS, seconded by Mr. WALTON, the committee of management were re-elected.

A vote of thanks to the Chairman closed the proceedings.

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PLYNLIMON MINING COMPANY.

A general meeting of shareholders was held at the offices, Austin-friars, on Wednesday.—Mr. W. E. WINGROVE in the chair.

The notice convening the meeting was read.

The report of Capt. JOHN GARLAND (the manager) stating that the total ground worked during the year had been 439 fathoms, the stopping in all amounted to 328 fathoms, and that the drift in productive ground 13 fathoms, giving a total of productive ground worked 341 fathoms. The number of fathoms of productive ground worked during the past year was 341, which yielded 390 tons 10 cwt. of lead ore, to which should be added 50 tons, estimated to be lying broken on the stulls, giving from May, 1874, to May, 1875, a return of 440 tons 10 cwt., which realised 6173*l.* 5s. 9d., averaging 14*l.* 9s. 3d. per ton. The new shaft will be pushed on towards another level as fast as possible; had it not been for the long drought this work would have been completed ere now; he trusts to be able to keep on here with regularity, and has no doubt but that they will soon get under the deposit of mundic, which now forms the chief component of this lode, and which he still firmly believes will give place to lead ore. The 12*th* west of engine-shaft, having now got well into rising ground, and gained good backs, ought soon to enter productive ground; this level should be pushed on as fast as possible, as there is a very long piece of virgin ground in advance thereof. Should the proposed driftage of the 24*th*, east of the bottom of winze, prove according to his expectations, the 20*th*, east of Hugh's winze, should at once be resumed, and men placed to drive west from new winze so as to expedite opening out the center of the ground, and between these points, and enable them to push on the level eastward into the ore ground. The cross-cut from the adit to intersect the new lode he also strongly recommends to notice, as he does not see any reason why this lode should not make good bunches of ore. He is very sorry to remark that the operations proposed in his report for the meeting last year have not turned out according to expectations, nevertheless the stopes have yielded quite up to his most sanguine expectations. He has succeeded in keeping up the monthly sales of lead ore, with the exception of two months in the aim to expedite opening out the center of the ground, and should the reserve ground yield according to his estimate, he believes that he can safely promise that favourable results will be obtained in the coming year. The machinery throughout the mine is all in fair working order, and drawing and dressing are progressing in a satisfactory manner. He hopes to sample another 40 tons of lead ore at the usual time—four weeks from date of last.

The CHAIRMAN said there were some salient points in connection with the accounts, which he trusted might fairly be regarded as the inauguration of a better state of things in this company. The sales of ore during the past year amounted to 440 tons, against 243 tons in the previous year, which realised 6173*l.*, against 3336*l.*, showing an increase during the past year of 197 tons, and in money value 2837*l.* The costs in the past year were 4093*l.*, and 4096*l.* in the previous year, so that, notwithstanding an increase of 197 tons sold, the costs had been 3*l.* less. In the previous year there had been a loss of 1392*l.*, but in the past year the profit had been 1231*l.* At the end of the previous year the balance of assets over liabilities was 681*l.*; at the end of the past year 1226*l.* The results would have been better but for the severe winter. Those few points were in some degree satisfactory and reassuring. The accounts showed the capital had been exhausted, and there had been carried to the credit of it 4775*l.*, which had been principally expended in driving the cross-cuts north, and other dead work, which was not chargeable against revenue; the balance of capital had also been exhausted by placing against it the balance of profit and loss for the past years, amounting to 2729*l.*, so that they now started with a clear balance-sheet. Captain Garland would afford any further information about the mine, although he (the Chairman) might mention that they were in great hopes that when the 36 fm. level had been reached they would find a continuance of the course of ore that had gone down in the level above. They could only trust that the improved features in the accounts were the inauguration of a better state of things, and that the mine would shortly be in a dividend-paying condition. There was an asset which did not appear in the accounts, and which had been to them a source of great trouble—he referred to the steam-engine, which had cost some 700*l.*; it had proved totally useless for the purpose required. He could not say to whom the blame attached; a person was employed, supposed to be an engineer, who fixed the engine to the water-wheel, but Capt. Garland informed them that it only pulled the water-wheel to pieces. Having again referred to the fact that but for the two months of unusually severe weather, which prevented two months' sales of ore being returned, the directors would probably now be in a position to declare a dividend, he concluded by moving that the report and balance-sheet be received and adopted.

Mr. F. COPE seconded the proposition.

Capt. GARLAND, in reply to a question, stated that the mine was certainly looking as favourable now as it did this time last year.

Mr. MURCHISON pointed out the facilities and other advantages to be derived from the new shaft, not the least being that in the immediate position where the ore "makes," and that they avoided passing through the hard bar of ground to reach the ore. The returns were now rather more than paying the costs, and the profits were increasing monthly.

The CHAIRMAN said if there had been no interruption in the returns, the accounts would show a profit between 1600*l.* and 1700*l.*

Mr. GODDARD considered that the engineer who had caused the company so much loss by the want of professional skill could be made legally responsible.

Mr. MURCHISON said it would be impossible to state the amount of loss, as besides the actual cost of the engine, delay had occurred in working the mine in an efficient manner.

Capt. GARLAND, in reply to a question, stated that it was a horizontal and not a beam engine, and could not be employed for pumping purposes.

The CHAIRMAN said the matter should receive the immediate attention of the board.

The report and accounts were received and adopted, and Messrs. Wingrove and Monypenny were unanimously re-elected directors.

The CHAIRMAN appropriately acknowledged the vote, and expressed a hope that the next time they met their best hopes would have been realised.

Messrs. Brandt and Stansfeld were re-elected auditors.

A vote of thanks to the Chairman and directors closed the proceedings.

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PENHALLS TIN MINING COMPANY.

A general meeting of shareholders was held at the offices, Austin-friars, on Monday, Mr. CLARKE in the chair.

Mr. HICKEY (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts, made up to April, showed a profit on the 12 weeks working of 367*l.*, increasing the credit balance to 993*l.* There had been sold during the 12 weeks 52 tons of tin, at an average price of 2*l.* 10s. per ton less than the previous quarter.

The report was read, as follows:—

July 2.—In the 70*th*, east of the engine-shaft, the lode on which this end is being driven is 15*ft.* 6*in.* in width, and is lying on a level, but not of much value. This end is as yet so far east as the tin ground in the level above. A rise has been put through to the 60, some 15 fms. behind the end, for the purpose of ventilation. The 60 east, on the south part of the lode, is worth 10*l.* per fathom; a stope in the back of this level is worth 8*l.* per fathom. In the cross-cut north, on the east cross-course, several small veins of capel containing tin have been passed through, but no well-defined lode corresponding to the north or principal part has yet been met with. In the back of the 50, in the eastern part of the mine, four stopes of work there are, the 48*th*, 49*th*, 50*th*, and 51*st*, the 30*th* east is producing some low 12*l.* per fathom, and the lode looking favourable. A stope below this level is worth 12*l.* per fathom, and one above 12*l.* per fathom. You will perceive from the sales during the past 12 weeks, and the value of the various points of operation as given above, that the mine continues to yield the usual quantities of tin, and to present

a very good prospect of continuance, while the price realised for the produce is unfortunately again lower by 2s. 10s. per ton than the last, which is the lowest average price obtained since the beginning of the year 1867, and we hope it may prove to be the lowest for many years to come. There is one favourable feature, however, in connection with mining operations just now—the prices of materials generally are lower than for some time past.—S. BENNETTS, W. HIGGINS.

The CHAIRMAN said the best report he could submit was to announce that the financial result of the quarter enabled the committee to recommend a dividend of 2s. per share, after the payment of which there would be carried forward nearly the same amount as at the last meeting—a result, considering the price of tin, that must be regarded as highly satisfactory. The various points of development fully maintained their former value.

Mr. HICKEY stated that one specially favourable feature was that the prices of materials generally were lower than had been the case for some time past. As to tin, the price realised during the past quarter had been the lowest since 1867.

After some further discussion, the accounts were passed and allowed, and with the report were ordered to be entered on the minutes.

A dividend of 2s. per share was declared. The committee of management were re-elected. A vote of thanks to the Chairman closed the proceedings.

WHEAL PEEVOR TIN MINING COMPANY.

A general meeting of shareholders was held at Crosby House, Bishopsgate-street, on Thursday.

Mr. THOMAS PRYOR (the purser) in the chair.

The notice convening the meeting having been read, the minutes of the last were confirmed.

The accounts, made up to the end of May, showed a debit balance of 979s.

The report of the managers was read, as follows:—

July 1.—Sir Frederick's engine-shaft is sunk about 2 fms. below the 60; the lode is 5 ft. wide, worth 20s. per fm. The pumpmen are now engaged in bringing down the main rods from the 30 to this level; when this is finished the sinking of the shaft will be resumed by nine men, and every effort will be made to get it down deep enough for another level as quickly as possible. The 60 is driven east of shaft about 13 fms.; the lode in this drive is about 4 ft. wide, worth 15s. per fm. The 60, west of shaft, is driven about 12 fms. on the north, or flooken part of the lode, which produces a little tin, but not enough to value. The south part of the lode will now be stripped down, and the value ascertained as quickly as possible. The slope in back of this level, east of shaft, is 20s. per fathom; sloping by six men, at 5s. per fathom. The 45, east of shaft, is driven about 14 fms.; at present six men are engaged in clearing and securing it; all the back of this drive is in the old men's workings, the bottom being in solid ground, and worth 10s. per fm. The 45, west of shaft, is driven about 35 fms.; the lode is 4 ft. wide, worth 15s. per fathom. All this drive is in productive ground, some of which is being worked on tribute at from 5s. to 10s. in 12. The 60 is driven about 35 fms. west of shaft; the lode at present is producing a little tin and stones of lead, worth 5s. per fm. All the drive is in productive ground. Three pitches are being worked in the back and bottom of this level, by 16 men, at 11s. in 12. The extra cost incurred and charged during the past 16 weeks is as follows:—For building a new dry for the men to change in, 60s.; completing a new engine pool, 50s.; new air-pump and bucket for the engine, 61s.; new wire-rope, 23s.; making a total of 184s. In consequence of the very low price for tin, and a few accidents to our pitwork, we have been unable to make the returns equal to what they were at the last meeting, but we are pleased to say the prospects of the mine still continue of a hopeful character, and as soon as the pitwork is completed from the 30 to the 60 we see no reason to doubt the returns being kept up, but we cannot see our way clear to promise to pay the cost of the mine at the present price of tin, although every effort will be made to do the utmost under the circumstances.—A. T. JAMES, W. PRYOR.

The CHAIRMAN, referring to the accounts, stated that everything had been charged up as closely as possible, the labour cost being charged up to June 12, and the merchants' bills up to May. The returns of tin had not been so large as during the previous corresponding period, the difference in the amount realised having been something like 800s.; but Capt. James, the manager, was present, and would be able to inform the shareholders the cause of the falling off. He would be glad to afford any additional information as to the accounts, and he would leave questions concerning the mine to be replied to by the manager.

Mr. WILLIAM WARD (Stock Exchange) said he was present not only to represent his own interest in the company—which he had increased since the last meeting—but also others who were not present; therefore, any information he sought to obtain, or enquiry he might make, would be with the sole view of clearing up matters about which there should not be the shadow of a doubt. By the adoption of this course he would be acting justly to his fellow-shareholders as well as to himself, and equally so to those officials who were entrusted with the financial management of the mine. The first enquiry he would wish to make was if it were not possible to have included the merchants' bills for June in the accounts now submitted?

The CHAIRMAN said if the bills for June had been included the returns also for that month should have been given credit for, which had not been done; there was always at least a month's tin at the surface.

Capt. JAMES added that, as far as the merchants' bills for June were concerned, in order to have had them included in the present statement the purser must have written expressly to the merchants to render the accounts.

Mr. WARD enquired the quantity of coal consumed monthly and the price paid for it?—Capt. JAMES: About 130 tons, at 18s. per ton.

Dr. GILLOW asked what amount for coal had been charged in the present accounts?—The CHAIRMAN: About 518s.; the great item was for coal.

Mr. WARD observed that the merchants' bills for March had amounted to 300s. He had been led to believe that after certain things had been done the merchants' bills would be considerably reduced.

The CHAIRMAN said that in the present statement about 200s. had been charged which might be fairly called unusual or extra expenditure; for instance, a new wire-rope, &c.

Dr. GILLOW asked if it would be more advantageous to stamp the tin than to sell it in the stone?—Capt. JAMES said he felt thoroughly satisfied that, under the present circumstances, they had better continue to sell the tin in the stone. He was disposed to think the proper time had not yet arrived to erect stamps, particularly as they were making as good a price by selling the stone.

Mr. WARD said the purser had told him that the proper course to adopt was to erect stamps, as that would effect a great saving.

The CHAIRMAN said that Capt. James was a practical man, and had gone into the question thoroughly. His (the Chairman's) experience had been that the mines which stamped their tin always did a great deal better than those which sold their tin in the stone. Although Capt. James was of a contrary opinion, he (the Chairman) still believed it would be better were they to stamp the tin at Peavor.

Mr. WARD inferred from the statement now made by Capt. James that the company had not lost anything by not completing the contract which had been entered into at the last meeting with Mr. Mitchell for the erection of steam-engine, stamps, &c., for 650s.

Capt. JAMES said he did not think they had. It was impossible to return the tin by stamping for less than 6s. per ton, whereas they sold it for 8s. per ton; this would not be the case with other tin mines. If the shareholders were prepared to subscribe 2000s. he should be very pleased indeed to erect stamps; but it was of no use beginning unless the shareholders were quite prepared to subscribe the necessary money.

The CHAIRMAN said that, in accordance with the request of Mr. Ward, the contract entered into with Mr. Mitchell at the last meeting for the erection of stamps had been cancelled.

Capt. JAMES, in reply to a question, stated that they could not work the present 16 heads of stamps more than one-third time without other engine.

Mr. MITCHELL said it was never intended to employ the present engine for the stamps.

The CHAIRMAN said it was merely a preliminary matter.

Mr. WARD directed attention to the statement in the report that the returns had been reduced by the frequent breakages. He should like to ask who was responsible for that?—Capt. JAMES said that breakages would happen in all mines.

Mr. WARD asked if there should not be an agent always on the mine, who could carefully examine the materials and determine whether they were perfect and suitable? It was most important someone should be held responsible for these breakages. As a large shareholder, he felt his interest had not been looked after by his agents.

The CHAIRMAN said that Mr. Ward was labouring under some misapprehension. Mr. WARD said that, judging by what had occurred, there appeared to be gross negligence in not fully examining everything before it was erected. It was a serious thing for the shareholders, who had expended upwards of 24,000s., to find that better results were not realised.

The CHAIRMAN said he held a large interest in the mine, and had but one object in view—to make it a success.

Mr. WARD said that since the last meeting the Chairman had reduced his interest by one-half.

The CHAIRMAN said he held jointly one-tenth of the mine, and he held it now.

Dr. GILLOW said the important question was, that as the mine could not be made to pay the costs with the present price of tin, could not the workings be so reduced—at least for a time—as to make the revenue balance the expenditure?

Capt. JAMES said that the mine was being worked as economically as possible. He could not see how it was possible to carry on the mine for less. It was true they could stop some of the workings and restrict the development, but if they did that they would soon stop the mine. There was scarcely a weak point in the mine; and if they could go on developing and opening it out, it seemed likely that Wheal

Peavor would be as great a prize as any in the district. With a little better price for tin, the mine would pay its costs. He did not know a young mine in Cornwall with better chances or better prospects of success than Wheal Peavor possesses at the present moment. He did not see how the costs could be very much reduced, or the returns increased, for the next four months. If they could realise 60s. per ton for their tin there would be no necessity to ask the shareholders to pay any calls.

Mr. WARD presumed that Capt. James was fully cognisant of all the materials and supplies that were sent on the mine?—The CHAIRMAN said that there was not a single article that was not ordered by Capt. James.

Mr. WARD asked if there were any items in the present accounts for supplies furnished previous to the last meeting?—Capt. JAMES said that some two or three small bills had been sent in for supplies previously furnished.

Mr. WARD said his question referred to materials sent to the mine. He had heard that supplies were sent in not ordered by the manager.

Capt. JAMES said that up to the present time he had ordered everything.

The CHAIRMAN said, in justice to himself and others, he was bound to give an emphatic denial to that statement.

Mr. WARD said he wished upon this occasion to make these enquiries publicly, with the view of eliciting the actual facts of the case. There were various rumours that their officials were dealers in and suppliers of the materials, and that goods were supplied that were not ordered by the manager. Now, was that true or not?

Capt. JAMES said that when he was first appointed manager there were a few things sent on the mine not ordered by himself. He did not return them because they were required, but nothing now was sent on to the mine without his orders.

Mr. WARD said he was glad he had obtained this information, as it would tend to allay all unpleasant rumours.

The CHAIRMAN said he was much obliged to Mr. Ward for having introduced this matter. It was true that Mr. Mitchell and himself had a joint interest in the East Carn Brea material-yard, from which they supplied materials to the value of between 8000s. and 10,000s. a year. It was also true that Capt. James purchased materials of them, but not if he could get them better or cheaper elsewhere.

Dr. GILLOW said that Capt. James was their manager, and they had every confidence in him—if not, he was not fit to be their manager. As long as he assured them that nothing went upon the mine without his approval both as to quality and price it did not matter where the materials came from, or by whom supplied. Capt. James must be the responsible man to them, and so long as they reposed confidence in him they must be satisfied with what he did.

Capt. JAMES said there was nothing in the accounts that had not come under his own personal supervision, and ordered by himself. He sometimes went to the second-hand material yards at East Carn Brea, because he believed he could best serve the company by going there. All the bills came under his own personal supervision.

The CHAIRMAN hoped that now every shareholder would be perfectly satisfied that nothing whatever was supplied to the mine unless ordered by Capt. James. He hoped after this that no more insinuations would be thrown out with reference to "Wheel Peavor."

Capt. JAMES said that he would guarantee that nothing should be supplied to the mine except by his order, and under his supervision.

Mr. THOMPSON said that the shareholders were greatly indebted to Mr. Ward for having brought these matters forward, and fully ventilating them at a general meeting of the shareholders.

Mr. WARD then proposed that the accounts be passed and allowed, and, with the report, entered upon the minutes.—Dr. GILLOW seconded the proposition, which was put and carried unanimously.

Dr. GILLOW proposed that a dividend be made of 5s. per share, which was seconded by Mr. THOMPSON and carried unanimously.

A resolution was then passed that an application be made to the Lords for a remission of the dues. It was also resolved that the cancellation of the contract made with Mr. Mitchell for the erection of a stamping-engine should be accepted.

Mr. WARD said he wished to ask this further question. As he had been instrumental in causing the cancellation of this contract, he wished to know from Capt. James whether the shareholders had in any way lost anything by it?

Capt. JAMES could not say they had. They would hardly have been the proper stamps, and he hoped the time would arrive when it would be necessary to erect more permanent machinery.

Mr. WARD said after the explanations that had been given he begged to propose a vote of thanks to the purser for having occupied the chair upon the present occasion.—Dr. GILLOW had much pleasure in seconding the proposition, which was put and carried unanimously.

The CHAIRMAN having acknowledged the vote, the proceedings terminated.

GREAT LOVELL MINING COMPANY.

A general meeting of shareholders was held at the offices, Gresham Buildings, Basinghall-street, on July 3.

Mr. JOSIAH HITCHINS in the chair.

Mr. GRANVILLE SHARP (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts for 20 weeks (ending May 22) showed a debit balance of 1395s. The report of the agent detailed the various points of operation and their prospects, and stated that there was every indication that at the next level the shareholders would be rewarded for their patience and outlay.

The CHAIRMAN moved that the accounts be passed and allowed, and with the report entered on the minutes.

A SHAREHOLDER wished to know in what better position the mine was now than 12 months since?—Mr. BIDDER, jun., said he was not going to make any prediction, but he believed himself the mine was in a very much better position than 12 months ago. Like every other shareholder, he was disappointed at the delay in realising their expectations. The reason the call had been so heavy was the number of shares had been considerably reduced by the bankruptcy of the largest shareholder, which struck off 1500 shares. But if the mine should prove a success the returns would be proportionately increased. They had suffered from the low price of tin in connection with all other tin mines. Within the last 12 months there had been sold tin to the value of about 1100s., whereas during the previous 12 months tin to the value of only 200s. was sold. It was only recently they had got into the regular lode, and were, therefore, in a position to make regular returns. There was every reason to believe their position was now improving every day, because they were opening out ground that could be worked at a profit—not a large profit. He did not pretend to say the mine would pay in the next six or eight months, unless, indeed, tin should improve in value.

A SHAREHOLDER would go further, for he doubted if the mine would ever even pay costs, and unless there was some confirmation of the favourable impressions he should certainly relinquish his shares.

Mr. BIDDER, jun., said if all the shareholders relinquished their shares he should carry on the mine himself—that is, so long as the present favourable indications were continued.—The CHAIRMAN thought it would be most imprudent to throw up shares now that the mine was looking better; the lode seemed more regular and continuous from the 34 to the 44, which was a feature of considerable importance.

Mr. BIDDER continued: He had no wish to picket away a little tin here and there where they could, in order to make an appearance of paying costs. He then referred to the report furnished to the meeting held in May, 1874, which was one of 20 weeks' workings; 100s. worth of tin was sold at high prices, and now 230s. worth had been sold at the lower prices. A plan—which was submitted—showed that Hitches's shaft had been sunk below the 34 and completed to the 44, and it had been cased and divided; the level had been driven, but the ground not being promising, further driving had been abandoned. The 34 had been driven west 6 fms. The 44 cross-cut had been continued until it had reached a better lode. Several winzes were being sunk below the 44, where there was a regular lode. The lode had appeared in the north of the 44, where there were three or four stopes, which were increasing in value. Last month's labour costs had been about 200s., but he hoped in future it would not be necessary to expect more than 220s. or 230s. to cover everything. If, however, he saw the mine would be better developed by putting on more men and increasing the cost he would unhesitatingly do so. The reason that led him to go on working this mine was that they had now, owing to the expense incurred during the last four months, developed the eastern ground in depth, and he could not see why having brought the mine to its present position he should throw the mine up before he secured the advantage of his outlay.

After some further discussion, the motion adopting the accounts was put and carried.—A call of 10s. per share was made.

A vote of thanks to the Chairman closed the proceedings.

NEWPORT ABERCARN BLACK VEIN STEAM COAL CO.

The third general meeting of shareholders will be held on Wednesday, when the following report will be presented:—

Your directors have still to announce a continuance of the hard and almost impenetrable rock through which they have to force the way. This has been of a nature and to an extent which has heretofore defied all the computations of those professional men most competent to judge. But at length comparisons and measurements have been made in the works in the neighbourhood, and it is with some confidence that the subjoined calculations are placed before the shareholders. First, as to the respective depths of the three pits:—No. 1, 375 ft. or 126 yards; No. 2, 358 ft. or 119 yards 6 in.; No. 3, 425 ft. or 142 yards. These measurements are up to Saturday, June 26. The walling is completed in No. 2, and about 16 yards of arching of the Pond Headings are already built in connection with this pit. It is believed that the proportions of rock between the present bottom and the charcoal vein amount altogether to 12 yards 2 ft., or as near as possible to one-half of the distance to be sunk to that seam. This rock is not in one mass, but is no less than six distinct layers, varying in thickness from about 1 yard to about 3 yards and 2 ft. Unfortunately for us, the thickest section is the hardest of all; but we are in hopes that, as we are wasting some time ago, the charcoal vein will be laid bare in the month of August. It will be seen by the annexed accounts that the total expenditure since the commencement of operations has been 107,670s. 13s. 4d.; of this sum no less than 76,292s. 3s. 3d. has been expended in machinery and permanent works, which are all ready for application the moment coal is reached. Money has been raised on the cottages to the amount of 4500s., on terms which are considered favourable; the re-payment of this sum is spread over 14 years. It will interest the shareholders to know that the Patent Nut and Bolt Company, to whom a distant section of our ground was sub-leased by this company, are fast approaching our limits, and it will be a strong indication of the kind and quality of coal which we may expect in our pits when we see the result of that company's driving into our ground. This is the more important as the Nut and Bolt Company are driving on the level of our black vein.

'For remainder of Meetings see to-day's Journal.'

IMPORTANT STEAM TRIALS.—Some experimental trials are to be made at Portsmouth to test the steaming qualities of Monmouthshire coal, with a

view to its re-introduction into the Navy, the use of this coal having been discontinued in favour of that of the North Country when Mr. Baxter was at the Admiralty. The North Country coal is much objected to in the Navy, and has to be mixed with smokeless coal to make its use possible.—Globe.

FOREIGN MINING AND METALLURGY.

The Belgian iron trade remains in an indecisive state, and orders are obtained with considerable difficulty. Rolled iron has brought 8s. 12s. to 8s. 16s. per ton, according to quality; plates for construction purposes have made 11s. 8s. per ton. The quantities of special iron introduced into Paris in the first three months of this year exceeded the imports of the corresponding period of 1874 by 2000 tons. As regards imports of castings, 1875 presented in the first quarter of the year a diminution of about 200 tons, as compared with the corresponding period of 1874. In the East and North of France the iron trade has shown comparatively little animation; in the latter district there have, however, been symptoms of a slight revival in affairs. In the Champagne group rolled coke-made iron, first-class, has brought 8s. 12s. per ton, and mixed qualities 9s. 12s. per ton. Axles remain in great favour. Rough axles have been quoted at 12s., and turned axles at 16s. 8s. to 18s. per ton. Rough pig for refining has been neglected; ordinary charcoal-made pig has been offered at 4s. 8s. per ton without finding purchasers. The Marival and Brouseval furnaces for second-fusion pig have been blown out. The floods in the South of France have inflicted great damage upon the works of MM. Campionnet, Sons, and Co.; the stoppage of this establishment alone has thrown 250 workmen out of employment. The Forges et Chantiers de la Méditerranée have completed a very large and heavily plated iron-clad of the monitor type for the Brazilian Government; she has been named the Javary.

Metallurgical affairs are still in rather a languishing condition in Belgium; the rolling-mills have, however, received a few orders for merchants' iron and rails for tramways. The mills producing ordinary rails have comparatively few orders on hand at present. The mills producing light plates are, however, pretty well employed. Upon the whole, the situation presents no great change, but prices may be said to exhibit a little more firmness. Belgian pig is kept down at a low price by the continued competition of Luxembourg pig. During the first five months of this year 63,000 tons of minerals, scrap iron, rough pig, old iron, and various works in iron were imported into Belgium; the corresponding imports in the corresponding period of 1874 were 71,000 tons, and in the corresponding period of 1873, 90,000 tons. The imports have thus exhibited a continuous decline during the last two years. The exports of iron of all kinds from Belgium in the first five months of the year were 88,000 tons, against 112,000 tons in the corresponding period of 1874, and 103,000 tons in the corresponding period of 1873. An adjudication is announced of 2930 tons of rails for a Westphalian Railway. The Courcelles Nord Colliery Company divides 8s. per share for 1874; half this dividend will be paid on July 15.

The Belgian coal trade presents little interest. The colliery owners are drifting on from day to day in hope of better times. Prices, so far as they can be ascertained, have exhibited little change. In consequence of a cessation of working operations, resulting from a strike, stocks in the Couchant de Mons have been slightly reduced during the last few days. Contracts have been let by certain sugar-works, the proprietors of which had hesitated in expectation of lower prices, the impression now being that such rates are not likely to prevail. It appears from a report by M. Berazem, a mining engineer, that out of 39 collieries in the province of Namur 22 were in activity last year. These collieries employed 3580 miners, whose average wages were 3s. 2d. per day. The production was 440,000 tons, the sale price being on an average 10s. 3d. per ton. As compared with 1873 the production of the province only declined last year to the extent of about 2 per cent., but all the coal extracted last year was not sold, a stock of about 100,000 tons remaining at the pit's mouth. Prices experienced a reduction of 23 per cent. last year as compared with 1873; wages fell 19 per cent. It appears from official Belgian returns that 275,000 tons of coal were imported into Belgium in the first five months of this year (190,000 tons from England and the Zollverein), against 138,000 tons in the corresponding period of 1874, and 235,000 tons in the corresponding period of 1873. The exports of coal from Belgium in the first five months of this year were 1,580,000 tons (of which 1,516,000 tons went to France), against 1,353,000 tons in the corresponding period of 1874, and 1,771,000 tons in the corresponding period of 1873.

The French Coal Trade has not presented much more animation than in preceding weeks. M. Ouvre, jun., has undertaken to supply Mons coal for the Polytechnic School at Paris at 24s. 8d. per ton, and Charleroi coal for the same establishment at 23s. 2d. per ton. Contracts for similar coal have been let for the Turgo, the Colbert, and the Lavoisier schools, and sundry other establishments, at slightly lower rates. These adjudications have not given rise, however, to any important transactions; purchases are only made from day to day, and long-term engagements are avoided. In the Nord and in the Pas de Calais the rainy weather, which has been productive of so many disasters in the South of France, has proved beneficial to the culture of beetroot, and a good crop is now anticipated. This circumstance has given a little more firmness to coal quotations at some points in the North of France; at Lyons and St. Etienne, however, business has ruled very quiet. The directors of the Lys Supérieure Colliery Company was last year worked at a loss; the production of the year amounted to 392,948 hectolitres, or 11,161 hectolitres less than the corresponding production of 1873.

Chilian copper bars, delivered at Havre, has brought 87s. per ton at Paris; ditto ordinary descriptions, 86s. per ton; ditto in ingots, 90s. 10s. per ton; English tough cake, 90s. per ton; and Coroco mineral (pure copper), 84s. 12s. per ton. The deliveries of Banca tin in Holland to June 30 this year were 69,214 ingots, as compared with 68,623 ingots in the corresponding period of 1874; the price of Banca in Holland at the close of June, 1873, was 50s. 6d., the corresponding quotation at the close of June, 1874, having been 60s. At Paris, Banca, delivered at Havre or Paris, has made 93s. 12s.; Straits delivered at Havre or Paris, 89s. 12s. per ton; and English, delivered at Havre or Rouen, 91s. per ton. The quotation for French lead, delivered at Paris, has been 22s. 12s. per ton. Rolled Vieille Montagne zinc has made 34s. per ton at Marseilles, with a discount of 3 per cent.

IMPROVED DRY AMALGAMATOR.—Mr. EDWIN J. FRASER has recently patented a machine for subjecting dry pulverised ore to the action of quicksilver, in order to separate and amalgamate the metallic portion, while the lighter or non-metallic portion is carried away. It is equally useful for separating finely divided amalgam after the pulverised ore has been submitted to the dry barrel process of amalgamation. Inside of a box or tank, having an inlet spout at one end and an outlet spout at the opposite end, is mounted one or more cylinders, upon journals bearing on the side of the tank or box. Each cylinder extends entirely across inside of the tank, there being a narrow space between the outer rims of each, and each one is provided with a number of buckets. Between each two cylinders is secured a partition or plate, so that its lower edge will dip into the mercury, and will be just cleared by the buckets of the first cylinder, while its upper edge extends above the surface of the quicksilver for the purpose hereafter described. The cylinders and rings are covered with copper, so as to give a large amalgamating surface. The tank will be kept filled with quicksilver, so that the greater portion of each cylinder will move in it, and thus preserve a fresh amalgamated surface. The cylinders are geared together, so that the power applied will rotate them simultaneously. The dry pulverised ore to be amalgamated is fed into one end of the tank by the inlet spout. As it falls on the surface of the quicksilver, the buckets of the first rotating cylinder will catch it and draw it under its surface of the quicksilver and around with it, so as to transfer it to its opposite side and beyond the accompanying partition. During the passage through the body of quicksilver the particles of ore are brought into direct contact with the mercury and the amalgamated surface of the cylinder and buckets, thus insuring the amalgamation of the particles of metal. As the ore is carried past the lowest point in the revolution of the buckets, the particles which have not become amalgamated will begin to rise on the opposite side of the cylinder, where they will be directed by the partition plate to the surface on the side opposite the first cylinder and within reach of the buckets of the cylinder, which again catch it and repeat the process of submersion in the same manner as above described. This process will be repeated as often as there are cylinders in the tank. The worthless portion of the ore will finally be carried to the surface at the outlet spout, from whence it can be removed. By this means the ore is thoroughly subjected to the action of the quicksilver, and any particles of metal which it contains are amalgamated. This machine is simple and light, so that it can be easily transported to points where it is impracticable to transport large amalgamating machinery, and such as is usually employed for amalgamating in the wet way. It also offers the advantage of providing a means of amalgamating ores at points where water cannot be obtained.—Mining and Scientific Press (San Francisco.)

AUSTRALIAN MINING—MONTHLY SUMMARY.

NEW MACHINERY.—A new gold-dressing machine has been erected by Mr. W. Pole, a gentleman of extensive experience in such matters, and one who has extended much time and energy in endeavouring to supply improved gold-dressing apparatus. The appliance, which is intended as a model, comprises four 1-cwt. stampers, and is capable of crushing 1 ton of quartz in from two to three hours. The object of the visit was not so much to see the machine in operation as to hear explained the process of preparation that the quartz goes through before being placed in the machine. It includes roasting the stone in a vertical furnace, and placing it in a bath of cyanide of potassium, and then in a bath of cyanide of sodium, which have the effect of driving off the arsenic, sulphur, antimony, pyrites, and other foreign matters that would interfere with the perfect amalgamation of the gold. The quartz thus prepared is then subjected to crushing by the stampers, and gold is extracted by means of an amalgamator of a new and peculiar construction, which is considered to do its work more thoroughly than any hitherto in use. The benefits claimed for the machine are cheapness in cost and greater rapidity in the work, while much additional work can be got through, it being stated that ten times as much quartz can be crushed in the same time as by ordinary machines, owing to the stone being rendered so brittle by the cyaniding and smelting process. Added to these advantages it is believed that the new machine will prove much more efficient in extracting the whole of the gold on account of the perfect amalgamation that can be obtained. The apparatus was not in operation, there being no driving power attached. A very little expenditure, however, will there being no deficiency, and altogether the machine can be supplied and erected at a comparatively small cost. Mr. Pole fully explained the mechanism and its effect, and confidently believes that the appliances will realise the expectations formed. He should answer it will prove invaluable to persons prosecuting mining operations, as it will enable such work to be carried on at a minimum of cost, while the great desideratum—that of saving the precious metal—will be secured. The gentleman's desire was that of saving the precious metal; but of course greater satisfaction will be present when the machine is seen in full work. Mr. Pole has patented his work in Melbourne, and intends doing so in Adelaide, after which a thorough trial will be made, and further inspection invited. —*South Australian Register.*

ALLEGED IMPROPER INTERFERENCE IN PROMOTING A MINING COMPANY.—A letter from Melbourne (May 18) says that, independently of the deficiency in the revenue and the other ordinary subjects for attack, it is said the Government will be assailed especially on a contract in which it is alleged a mining company with which the Chief Secretary and the Minister of Public Works are connected received direct and indirect advantages. With respect to the allegations about the mining company, shortly, they resolve themselves into what follows: The Beechworth Mining Company was placed upon the London market for "floatation," with the names of the Hon. G. B. Kerferd, Premier, and the Hon. R. S. Anderson, Minister of Public Works, paraded on the directory. No sooner did the advertisement appear than the company found its way out here than the *Argus* promptly called attention to the phenomenon, and severely criticised the conduct of these Ministers in lending the weight of their official titles to a private speculation, the success or non-success of which might affect the reputation of the colony. The journal took the point that Ministers had no right to utilise their public position for their own pecuniary benefit, and further commented on the whole proceeding in this instance as a question of propriety and good taste. The answer to all this is said to be that although Messrs. Kerferd and Anderson are, as a matter of fact, directors of the company, yet that their titles were added to their names on the prospectus without their knowledge and consent. They must, therefore, rather be condoled with than blamed for this little impropriety. But another and more awkward charge has arisen out of the affair. A Melbourne journal, called the *Age*, appears to have got wind of some transactions between the Beechworth Mining Company and the Government, and sent a special reporter to make enquiries on the spot. He reported that the railway department had purchased so many thousands of tons of "tailings" from the Beechworth Company for the purpose of constructing the Beechworth line of railway, and that in order to facilitate delivery of these "tailings" the Government had laid down a permanent tramway, at great cost, from the claim to the line. In this business it is alleged, first, that the Government paid a far higher price for the "tailings" than they were worth; and secondly, that the tramway was an expenditure of the public money incurred solely for the benefit of the company. The inference, of course, is that the Ministers who were directors of the company managed to secure this little contract by virtue of their influence with the Minister of Railways. The journals on the Ministerial side deny the statements made, or at least that they are not true. They also deprecate these charges against public men at a time when they are powerless to defend themselves. There the matter rests until the Assembly meets, when we shall have the history of the transaction.

THE BURRA.—Pumping operations are being carried on vigorously. In 50 hours the water has been forked from the 50 to the 60, besides all the workings in the 60, consisting of hundreds of fathoms of levels, slopes, &c., being cleared. The quantity of water pumped during 50 hours was no less than 3,500,000 gallons, being about 1,200,000 gallons above the usual quantity pumped in the same space of time. We hear that as soon as the water is pumped to the 70 sinking and driving will be carried on with all dispatch.

THE DEVON CONSOLS.—Capt. Northey reported on the 15th inst.—"We have resumed driving the 35 end again this week; the lode in the end is 5 ft. wide, with 4 ft. of solid ore. This is the best lode I have seen in the mine. The end at the present time is worth fully 100% per fathom. The lode is hard, consequently we cannot drive the end very fast. The lode in the bottom of the 25 winze is 5 ft. wide, with 3 ft. of solid ore, yielding 7 tons of ore per fathom, worth 75% per fm.

THE KURILLA.—Solid progress is being made towards the establishing of a good and permanent mine. It is pleasing to all, and must be very gratifying to the proprietors of the Kurilla to hear that after the very limited time since the mine was drained—only a bare five months—over 100 tons of ore have been dispatched of superior quality. We hope it is only the first of many hundreds.

THE MOONATA.—Costeering is being prosecuted near the township on the northern side, but no lode of any value has yet been discovered. It is popularly believed that there are two or three rich lodes under Moonta (i.e., the Moonta township), the ground for the supposition being the discovery on two or three occasions of ore in excavations for tanks. The workings at Hall's—the shaft nearest the township—are going on steadily. The lode is fairly earning out a little copper, but this part of the mine does not, unfortunately, improve as much as could be desired. Large quantities of grey and yellow ore are being raised from Ferguson's shaft, and operations in the vicinity are carrying on very vigorously. On the floor quite a busy scene is manifest in dressing and manipulating the various piles of trouters and company's ores. The ground in the bottom of Beddome's shaft is extremely good, but the yield of ore from the upper levels continues very satisfactory.

THE POOL.—From the shaft there has been a good deal of ore raised, and the lode is wide and spangled with yellow ore. The ground in the bottom of the house's shaft, sinking below the 100, is becoming much harder than it has been, so that very slow progress is made. The lode is almost destitute of ore at present, but hopes are entertained of a speedy improvement. The new offices are fast approaching completion, and when finished will give the clerical department greatly increased accommodation. The recent rains have filled all the tanks to overflow, and will enable the population to dispense with distilled water for a long time.

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and I anticipate, at this present rate of progress, that this contract will be completed and a rise shaft put up into wash dirt in about two months from date."

Capt. Anglin (May 15) writes:—"I beg to inform you the contractors have extended reef drive 300 ft. During the earlier portion of the past fortnight this ground was softer, and intersected with quartz veins. The last few days it has been harder. From the appearance of the ground above I think this will be the last tight bar they will get. The Ironstone Hill Company have a good reef wash in proximity to our boundary. Their yield of gold for this last fortnight was 173 ozs. 5 dwts., enhancing the value of the Central Mine considerably. Mine and main lorry, &c., all in good order."

SCOTTISH AUSTRALIAN.—The directors have advices from Sydney, dated May 14, with reports from the Lambton Colliery to the 11th of that month. The sales of coal for the month of April amounted to 7094 tons, exclusive of coal (on the present occasion more than usual) put on board vessels, the loading of which had not been completed by the end of the month, and which will, therefore, be included in the next month's returns.

ANGLO-AUSTRALIAN.—Capt. Raisbeck, Fryerstown, May 17: Cross-cut 320 Feet Level: We have extended this drive 22 ft. The country is still strong and hard. We are passing through small leaders of quartz, but none of any importance as yet; distance from shaft 163 ft. I have crushed 5 tons of quartz from the shallow shaft mentioned in last report, result 8 dwts. of gold. We have driven 20 ft. in the bottom drive south in the prospecting shaft, and crushed 6 tons of stone from it—result 12 dwts. of gold, and have 7 dwts. of gold from cleaning the battery at various times. We have constructed 100 ft. of tramway from east shaft to the battery, and will put in catches as soon as convenient. When finished we shall have a good road from the underground workings to the battery—Rise 200 ft. Cross-cut: The contract let on the 14th ult. to rise 60 ft. was given up on the 19th ult. We advertised for fresh tenders, and let on the 2nd at 33s. per foot for 60 ft. The contractors have risen 15 ft. In rising we have passed through three small leaders of quartz, showing a little gold. The contractors do not give entire satisfaction with the work, but I think they will finish it, as the ground will be more favourable for them as they proceed. I have been obliged to put in a water-blast and air-pipes from the surface to the rise, as the contractors could not get on without it.

YORKE PENINSULA.—The directors have advices from the committee of inspection of the company at Adelaide, dated May 15, with reports from the Kurilla Mine to the 11th. The following are extracts from Capt. Anthony's report:—"From Hall's engine-shaft I continue to drive the 15 and 25 east. In the 25 the lode was during the month valueless for about 3 fms., but it did not diminish in size. On the 13th inst. I again came on the ore, which now pervades the whole of the lode for 4 ft. in width, and is equal to 4 tons of 15 per cent. ore per fathom. In the 15 the stratum is soft mica slate of the kind occurring in the 25, and no doubt can exist of ore in paying quantity lying between both drives. Four men have commenced to stop away the ore in back of the 15, where the lode holds good, and is yielding a good pile of ore. Of the regularity of the yield I cannot yet speak with any degree of certainty, as the slope is so near the change that stones of grey ore are already found mixed with the coated yellow; there is, however, every reason to expect a deposit of green ore between this and the surface. Grainger's shaft is being enlarged and timbered below the 15—set to 20 ft. men, to complete in every way to the 25, for the sum of 200l., with a bonus of 20l. should it be finished by the end of July. Two men are driving the 10 west, on the new lode, at 4l. per fathom. The lode is pinched by hard ground, but it carries ore more or less all the way, but not enough to pay. Two men are sinking away the ore in the 10 east, at 11l. per fathom, they having to separate the ore underground; the yield is not large, but paying well on account of the softness of the ground. The men are stopping on tribute in the 25 and 15 at 10s. in 1l. I hope to get a second parcel of 100 tons of ore by the end of June; and, should not falling off take place, I see nothing to prevent bi-monthly sales in the future—to what extent I have not yet ground enough laid open to enable to form a reliable opinion, and especially as no winze is yet sunk from the 15 to the 25. The prospects, however, judging from the appearance in the drives, are satisfactory. Our prospects are fully as good as when last reported."

PERCUSSIVE ROCK DRILLS.—The invention of Major Beaumont, of Westminster Chambers, Victoria-street, consists in working rotating slides for percussive rock drills by an auxiliary engine worked by the fluid under pressure which is employed to work the drill piston, the movement of the slides being thus rendered independent of the strokes of the drill; it also relates to means of advancing such drills as the holes driven by them become deeper, a small piston acted on by the fluid under pressure being employed to turn by a pawl lever and ratchet the advancing screw during the back stroke of the drill, and the pawl being advanced tooth by tooth by means of a lever acted on by a coned part of the drill spindle during its forward stroke. The auxiliary engine that works the rotating slide can also be geared with the advancing screw so as to retract the drill.

UTILISING TIN-PLATE SCRAP.—The invention of Mr. F. G. Morton, of Lynton-street, Bermondsey, has for its object a simple, economical, and efficient means of separating the tin from the iron of tin-plate scraps, and generally for separating from iron or other metal, tin, solder, or zinc, or mixtures thereof, which may be attached thereto in the form of a coating. The tin-plate scraps or other combination of metals to be operated upon are submitted to the action of a blast or current of highly-heated air in an enclosed or jacketed vessel or chamber, provided with a perforated false bottom or grating, in such a manner as to melt the coating of tin, solder, zinc, or mixture of these, causing it to leave the iron or other metal and pass off through the false bottom or grating. The blast of air is caused to pass through or over a suitable furnace, and conducted into the jacket of the melting chamber, the internal shell of which is perforated to admit the hot air into the melting chamber, where it is diffused and caused to act upon the tin-plate scraps or other substances to be operated upon as aforesaid, which substances are simultaneously agitated.

"FATAL TO FLEAS."—"NALDIRE'S TABLET" is harmless to dogs, but fatal to fleas.—"FRANK BUCKLAND." This medicated soap is sold, price One Shilling, by all chemists and perfumers.

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FOR MAIN LINE TRAFFIC, SHORT LINES COLLIERIES, CONTRACTORS, IRONWORKS, MANUFACTORIES, &c., from a superior specification, equal to their first-class Railway Engines, and specially adapted for sharp curves and heavy gradients, may always be had at a short notice from—
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OFFICES, 150, ST. VINCENT STREET, GLASGOW.

IMPORTANT NOTICE TO MINE PROPRIETORS.
This company grant licenses, under their patents, for the use, singly or in combination, of the most approved machinery for dressing ores, comprising Stampers, Jiggers, Classifiers, and Buddles.

MR. GEORGE GREEN, Mechanical Engineer to the above Company, SUPPLIES MACHINES under the above Company's Patents for DRESSING ALL METALLIC ORES. Dressing-floors having these Machines possess the following advantages:—

1.—They are cheaper than any other kind in first outlay.
2.—From 60 to 70 per cent. of the labour is saved.
3.—Only about one-fourth of the space usually occupied by dressing-floors is required.

4.—The ore is made clean at one operation, and 5 per cent. of ores otherwise lost is saved.

Drawings, specifications, and estimates will be forwarded on application to—
GEORGE GREEN, M.E., ABERYSTWITH, SOUTH WALES.

EXTRACTS FROM TESTIMONIALS RECEIVED:—

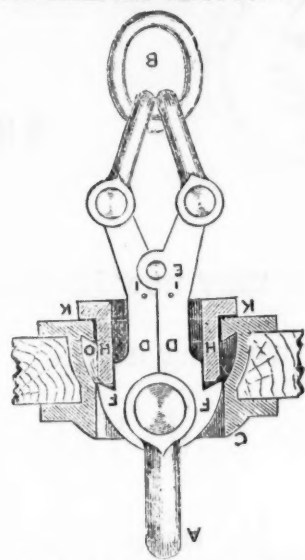
Mr. C. E. BAINBRIDGE, of the London Company's Mines, Middleton-in-Teesdale, by Darlington, writing on the 27th September, 1873, says:—"After a full season's experience of the very complete Dressing Machinery erected by you at our Colliery Mines, we are fully satisfied with our decision to adopt your patents in preference to all others. The machinery does its work as well as we can desire, and better than we anticipated. We are now getting through 70 tons of ore stuff per day, of rich quality. Without your machinery we should have been at a stand still, for we cannot get hands to supply our wants elsewhere. It saves fully one-half of the old wages, and vastly more on the wages we now give, and the saving in ore is not much short of 10 per cent. You can quote from this letter as you think proper."

Mr. COULTAS DODSWORTH, of Haydon Bridge, writes, on the 15th January, 1874:—"I have just returned from the Stonecroft and Greyside Mines, where I have seen your 'Patent Ore Dressing Machinery' at work, with which I must say, I was highly pleased. It is decidedly the best machinery I have ever seen for the purpose, the results being as near perfection as possible, and I am quite sure its use in this case will be a very great saving to the company. No large mining establishment should be without your machinery, especially when labour is difficult to procure—a mere fraction of the hands being only required as against the old system, and the work altogether much better done, and a great saving of ore effected. I have heard it said that your machinery is better adapted for poor ore than for rich ore, but I have seen to-day I am quite confident it will do for any kind of ore. I beg not only to congratulate, but also to compliment, you on the great success of your 'Patent Ore Dressing Machinery.' You may use this letter as you think proper."

Mr. MONTAGUE BRALE, Managing Director of the Cagliari Mining Company (Limited), says, on May 16th, 1873:—"I have much pleasure in speaking of the great efficiency of your 'Patent Dressing Machinery,' as erected by you at our mines at Ross, in the Island of Sardinia. You will remember it has always been considered impossible to dress, or rather separate, the minerals ore ores can be dressed by machinery, but our captain assures me he gets a constant return of 76 per cent. of lead with the greatest ease, and I know by the returns we are realising the best market price. I consider this company is much indebted to you for the success you have achieved at so small cost. It may interest you to know, from my experience in several of the British possessions, including the whole of the Australian Colonies, that my opinion is I have never seen any dressing machinery that can efficiently, and at so small a cost, dress, and separate metallic ores, however close the mechanical mixture may be, as yours. You can use this letter in any way you like."

The most satisfactory testimonials also have been received from the GREENSDALE MINING COMPANY, Westmoreland; the TALABOCH MINING COMPANY, North Wales; and others. Copies of these may be had from Mr. GREEN.

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AUSTRALIAN MINES.

PORT PHILLIP AND COLONIAL (Gold).—May 15: The quantity of quartz crushed for the four weeks ending April 21, 2919 tons; pyrites treated. 17 tons; total gold obtained 823 ozs. 9 dwts., or an average per ton of 5 dwts. 15 grs. Receipts, 9423l. 0s. 8d.; payments (including 1982l. paid for firewood), 2633l. 11s. 6d.; profit, 919l. 8s. 11d., from which was deducted from last month's debit balance of 119l. 1s. 1d., leaving a credit balance of 800l. 7s. 10d., which was carried forward to next month's account. The absence of any information regarding the new eastern vein in the last telegram is owing to the operations for the sinking the shaft a further depth, having interfered with the raising of the quartz from that vein during the month of June.

AUSTRALIAN CENTRAL.—Mr. Gill (May 18) writes:—"The reef drive is now in 260 ft. from shaft. The new men are pushing along vigorously,



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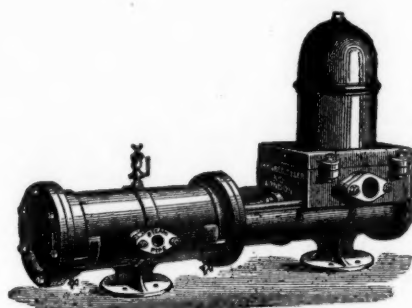
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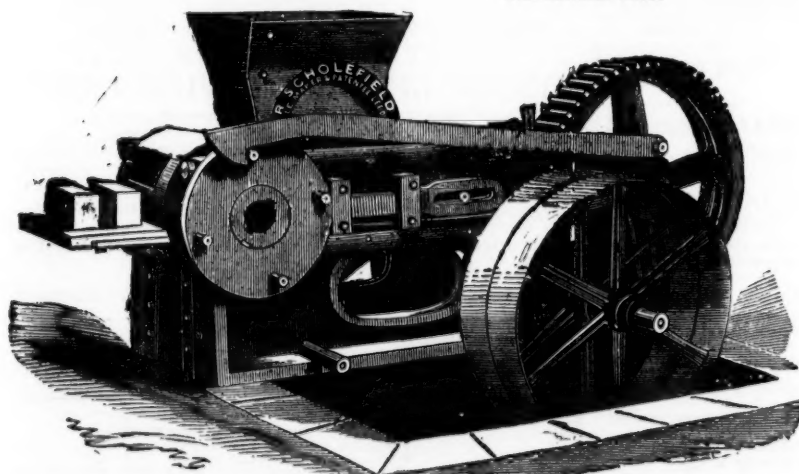
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PATENTED 1873.



R. S. begs to call the attention of all Colliery Owners in particular to his PATENT SEMI-DRY BRICK MACHINE, and the economical method of making bricks by his patent machinery from the refuse that is taken from the pits during the process of coal-getting, which, instead of storing at the pit's mouth (and making acres of valuable land useless), is at once made into bricks, at a very small cost, by R. S.'s Patent Brick-making Machinery. If the material is got from the pit hill, the following is about the cost of

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2 men digging, each 4s. per day	£0 8 0
1 man grinding, 4s. 6d. per day	0 4 6
1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day	0 2 0
1 boy greasing, 1s. 6d. per day	0 1 6
1 engine-man, 6s. per day	0 5 0
1 man wheeling bricks from machine to kiln, 4s. per day	0 4 0

Total cost of making 10,000 pressed bricks £1 5 0, or 2s. 6d. per 1000.
(SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

N.B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging.
As the above Machinery is particularly adapted for the using up of shale, bind, &c., it will be to the advantage of all Colliery Owners to adopt the use of the said Brick-making Machinery.

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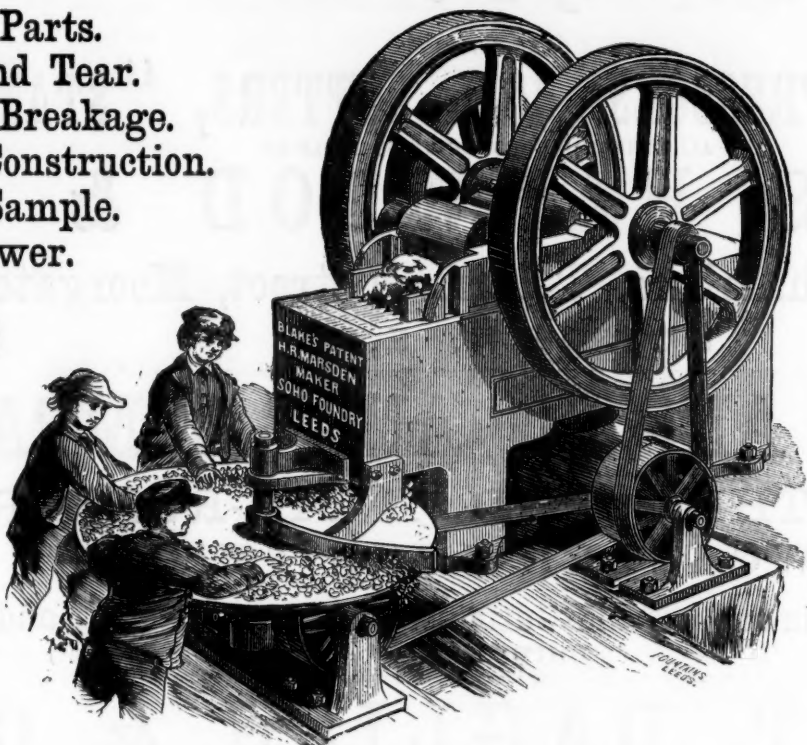
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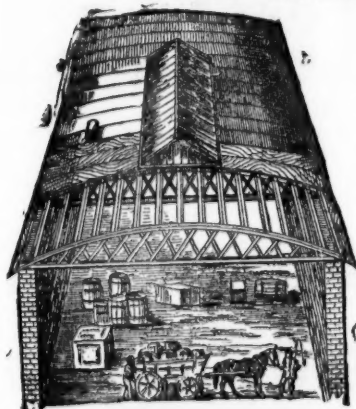
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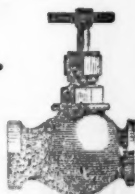
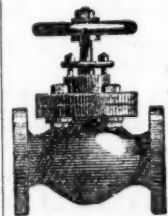
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